

# Integrated Transport and Health Impact Model

# Chart Book of Tables and Graphs: California

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#### **User Selections to Generate Output**

- Scenario
- Geography
- Year of Evaluation





#### **Scenario Choices**

Abbrev.	Scenario Name	Description
Baseline	2010 Baseline	Per capita mean travel times and distances by mode (walk, bike, car, bus, rail, truck, motorcycle) in 2010. Active modes are based on the California Household Travel Survey, 2012, and motorized modes are based on outputs of regional and statewide travel demand models
CARB2030	Air Resources Board 2017 Scoping Plan Update, 2030 Goals	The goal of tripling 2010 baseline levels of walking and transit and increasing those of bicycling by 9-fold by 2030
CSMP2020	CalTrans Strategic Management Plan, 2015-2020, Goals	The goal of doubling 2010 baseline levels of walking and transit and quadrupling those of bicycling by 2030
FixedTime	Fixed Amount of Walking or Cycling Time per Week	User-defined per capita minutes per week of walking and cycling with concomitant reductions in car travel
LCD	Low Carbon Driving	Car travel that reflects a significant increase in electric vehicles, hybrids, and low carbon fuels. No change in total car vehicle miles traveled or baseline levels of active transportation
Muliples	Multiples of the 2010 Baseline for Walking, Cycling, Transit	User-defined multiples of baseline levels of walking, cycling, and transit with concomitant reductions in car travel
ShortTrips	Short Car Trips (50%) Replaced by Walking and Cycling	Substituting 50% of short car trips (< 5 miles) by walking and cycling
SCS2040	Sustainable Community Strategies, 2040	Travel patterns of the preferred scenarios in California regions represented by the largest metropolitan planning organizations (SF Bay Area, Sacramento Area, San Joaquin Valley, Southern California, San Diego County)
USSG	U.S. Surgeon General Physical Activity Recommendations	Levels of active transport in the California population in which the typical resident walks 75 minutes per week and bicycles 75 minutes per week with concomitant reductions in car travel
Upload	User Upload	User-defined travel distances and time by mode





#### **Geographic Choices**

State & Regions
California
Sacramento Area (6 counties)
San Diego County
San Francisco Bay Area (9 counties)
San Joaquin Valley (8 counties)
Southern California (6 counties)

Counties		
Alameda	Sacramento	
Contra Costa	San Bernardino	
El Dorado	San Diego	
Fresno	San Francisco	
Imperial	San Joaquin	
Kern	San Mateo	
Kings	Santa Clara	
Los Angeles	Solano	
Madera	Sonoma	
Marin	Stanislaus	
Merced	Sutter	
Napa	Tulare	
Orange	Ventura	
Placer	Yolo	
Riverside	Yuba	

Note: Statistically reliable data on active transportation not available for other counties





# Options for Year of Evaluation and Population Projections

Time Periods
2010
2015-2019
2020-2024
2025-2029
2030-2034
2035-2039
2040-2044
2045-2049
2050-2054

Population projections based on California Department of Finance





#### **Organization of Tables/Charts**

- Summary Level
- Medium Detail
- Very Detailed





Table 1. Annual Changes in Active Travel Time, Deaths, Costs, and Carbon Emissions, California, CARB Scoping Plan (2030), 2010

Item	Baseline	Scenario
Active Travel Time (mean min/p/week)	40.6	181
Avoided Deaths		5,944
Health Cost Savings (\$ billion 2010)		7.1
Carbon Emissions (MMTY)	94.6	77.0

MMTY, million metric tons per year





Table 2. Per Capita Mean Weekly Active Travel Times (minutes), California, CARB Scoping Plan (2030), 2010

Mode	Baseline	Scenario
Walk	36.9	148
Bike	3.6	32.7
Total	40.6	181

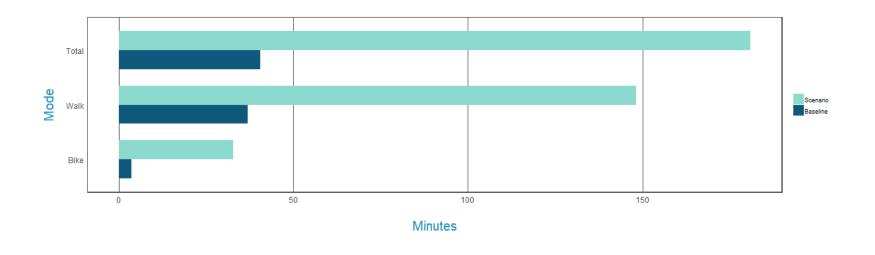






Table 3. Per Capita Mean Annual Travel Distance (Miles) by Mode, California, CARB Scoping Plan (2030), 2010

Mode	Baseline	Scenario
Active	134	725
Car	10,349	8,425
Transit	444	1,777
Total (incl. Truck & Motorcycle)	11,627	11,627

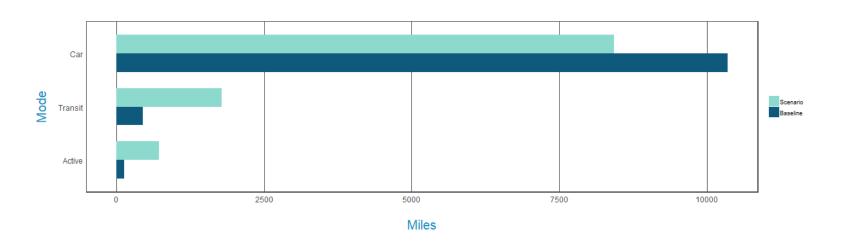






Table 4. Annual Change in the Burden of Disease by Health Pathway, California, CARB Scoping Plan (2030), 2010

Pathway	PAF %, Deaths	Deaths Avoided	PAF %, Dalys	Dalys Avoided
Physical Activity	6.9	6,019	6.6	118,645
Air Pollution	< 0.1	17.0	< 0.1	233
Road Traffic Injuries	-3.4	-91.8	-3.4	-5,716.1
Total	3.4	5,944	3.3	113,162

PAF, population attributable fraction; DALYS, disability adjusted life years Negative PAF and DALYs indicate an increase in the burden of disease and injury

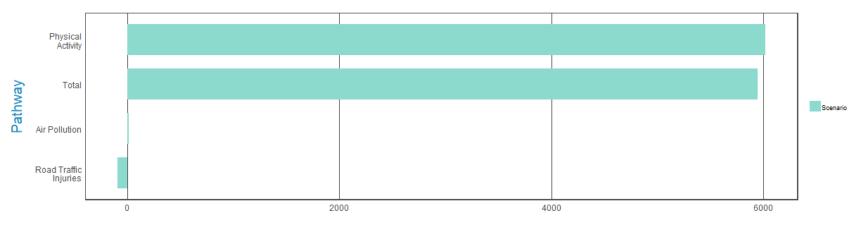








Table 5. Annual Cost Savings of Health Benefits (billions of 2010 dollars), California, CARB Scoping Plan (2030), 2010

Method	Dollars
Cost of Illness	7.1
Value of a Statistical Life	44.0

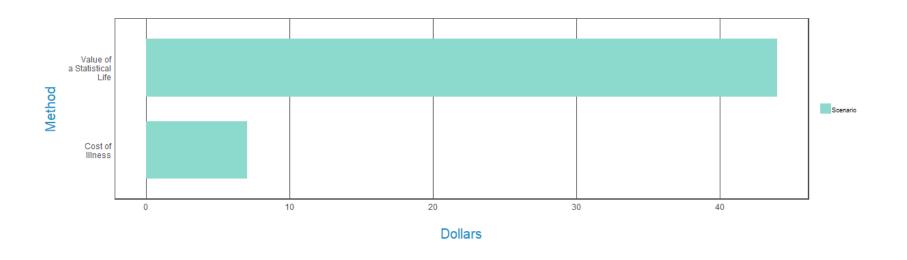






Table 6. Annual Car Carbon Emissions, California, CARB Scoping Plan (2030), 2010

CO <sub>2</sub> Emissions	Baseline	Scenario
Aggregate (Million Metric Tons)	94.6	77.0
Per Capita (Metric Tons)	2.7	2.2

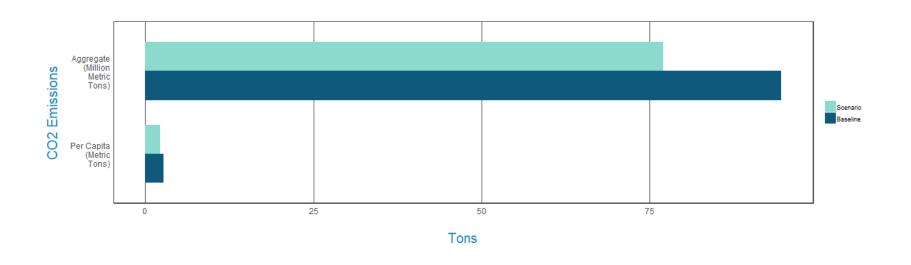






Table 1. Per Capita Mean Weekly Active Travel Time (minutes) by Age, California, CARB Scoping Plan (2030), 2010

Age Gender	Baseline	Scenario
00-04	41.3	180
05-14	44.6	197
15-29	39.6	179
30-44	45.1	202
45-59	40.0	182
60-69	39.1	170
70-79	30.1	130
80+	20.4	86.3
Male	39.6	185
Female	41.5	177

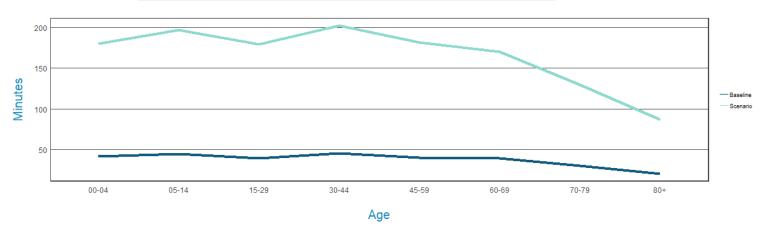






Table 2. Per Capita Mean Annual Travel Distance (Miles) by Mode, California, CARB Scoping Plan (2030), 2010

Mode	Baseline	Scenario
Walk	96.3	385
Bike	37.8	340
Car Driver	6,858	5,583
Car Passenger	3,491	2,842
Bus	297	1,187
Rail	148	590
Motorcycle	34.1	34.1
Truck	665	665

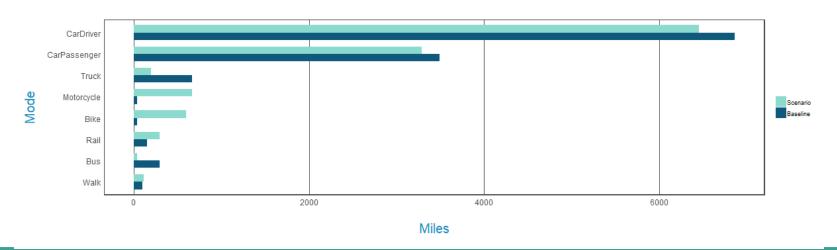






Table 3. Annual Number of Deaths Averted by Cause, California, CARB Scoping Plan (2030), 2010

Cause	PAF %	Deaths
Heart Disease and Stroke	7.0	4,190
Dementia	6.8	1,126
Diabetes	7.5	512
Colon Cancer	2.9	110
Breast Cancer	2.4	93.9
Lung Cancer	< 0.1	2.5
Respiratory diseases	< 0.1	2.2
Depression	0.0	0.0
Road Traffic Injuries	-3.0	-91.8
Total	5.1	5,944

PAF, population attributable fraction; DALYS, disability adjusted life years Negative PAF and DALYs indicate an increase in the burden of disease and injury

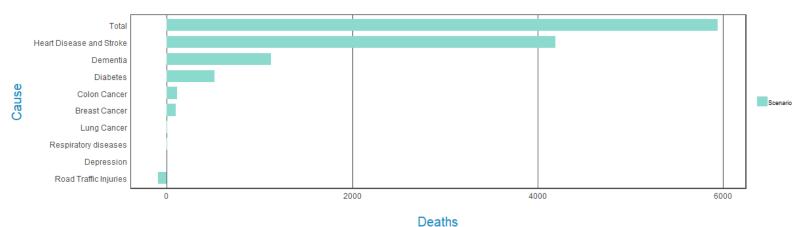






Table 4. Annual Cost Savings of Health Benefits (millions of 2010 dollars), California, CARB Scoping Plan (2030), 2010

Cause	COI	VSL
Heart Disease	3,704	24,489
Dementia	1,180	8,328
Stroke	408	6,513
Diabetes	1,780	3,786
Colon Cancer	73.0	811
Breast Cancer	57.9	695
Lung Cancer	1.2	18.2
Asthma and COPD	0.4	16.5
Depression	270	0.0
Road Traffic Injuries	-415.8	-679.0
Total	7,059	43,977

COI, cost of illness; VSL, value of a statistical life
Negative numbers indicate an increase in the burden of disease and injury/costs

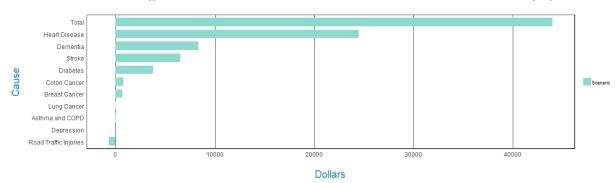






Table 1. Per Capita Mean Weekly Active Travel Time (minutes) by Age and Gender, California, CARB Scoping Plan (2030), 2010

Sex	Age Group	Population	Baseline Walk	Baseline Bike	Baseline Total	Scenario Walk	Scenario Bike	Scenario Total
Male	00-04	1,211,552	38.8	3.4	42.2	156	30.7	186
Male	05-14	2,439,675	41.7	4.2	45.9	167	37.9	205
Male	15-29	3,988,060	32.3	6.0	38.3	130	54.0	184
Male	30-44	3,658,369	33.1	5.8	38.9	133	52.3	185
Male	45-59	3,395,970	34.0	6.3	40.3	136	56.8	193
Male	60-69	1,348,746	36.2	4.4	40.7	145	40.0	185
Male	70-79	709,340	26.2	3.0	29.2	105	27.2	132
Male	80+	413,653	22.4	1.9	24.3	89.9	17.3	107
Female	00-04	1,158,662	37.9	2.4	40.3	152	21.8	174
Female	05-14	2,333,558	40.6	2.8	43.4	163	25.0	188
Female	15-29	3,750,401	39.2	1.9	41.0	157	16.9	174
Female	30-44	3,623,524	48.9	2.6	51.4	196	23.1	219
Female	45-59	3,492,692	37.4	2.2	39.6	150	20.3	170
Female	60-69	1,502,454	36.8	0.9	37.7	147	8.2	156
Female	70-79	877,407	30.0	0.8	30.8	120	7.5	128
Female	80+	681,201	17.8	0.2	18.1	71.5	2.2	73.6
Both	Total	34,585,264	36.9	3.6	40.6	148	32.7	181





Figure 1. Per Capita Mean Weekly Active Travel Time (minutes) by Age and Gender, California, CARB Scoping Plan (2030), 2010

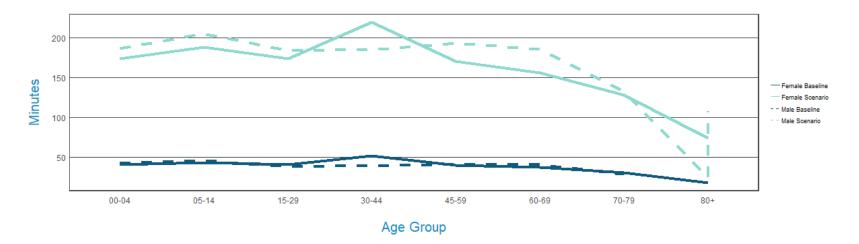






Table 2. Annual Change in the Burden of Disease by Health Pathway, California, CARB Scoping Plan (2030), 2010

Disease Injury Classification	Pathway	Change Deaths	Change YLL	Change YLD	Change DALY	PAF %, Deaths	PAF %, YLL	PAF %, YLD	PAF %, DALY
All Causes	PA	7,870	79,928	0.0	79,928	3.7	2.2	0.0	1.2
Ischemic Heart Disease	PA	2,735	42,935	4,127	47,062	7.4	8.8	9.0	8.9
Dementia	PA	1,126	7,397	5,011	12,408	6.8	6.3	6.1	6.2
Stroke	PA	878	13,759	4,608	18,368	7.2	8.5	8.8	8.6
Hypertensive Heart Disease	PA	566	9,833	279	10,112	7.4	9.1	8.3	9.1
Diabetes	PA	512	10,215	8,883	19,098	7.5	8.7	8.9	8.8
Colon Cancer	PA	110	1,663	120	1,783	2.9	2.4	2.7	2.5
Breast Cancer	PA	93.9	1,594	342	1,937	2.4	1.9	2.3	1.9
Depression	PA	0.0	0.0	7,877	7,877	0.0	0.0	2.3	2.3
Ischemic Heart Disease	PA+PM	2,742	43,025	4,127	47,152	7.5	8.9	9.0	8.9
Stroke	PA+PM	880	13,788	4,608	18,397	7.2	8.5	8.8	8.6
Hypertensive Heart Disease	PA+PM	567	9,853	279	10,132	7.4	9.1	8.3	9.1
All Causes	PM	42.0	651	0.0	651	< 0.1	< 0.1	0.0	< 0.1
Ischemic Heart Disease	PM	7.6	99.3	0.0	99.3	< 0.1	< 0.1	0.0	< 0.1
Stroke	PM	2.5	31.7	0.0	31.7	< 0.1	< 0.1	0.0	< 0.1
Lung Cancer	PM	2.5	41.3	0.0	41.3	< 0.1	< 0.1	0.0	< 0.1
Respiratory diseases	PM	2.2	27.2	0.0	27.2	< 0.1	< 0.1	0.0	< 0.1
Hypertensive Heart Disease	PM	1.6	22.0	0.0	22.0	< 0.1	< 0.1	0.0	< 0.1
Inflammatory Heart Disease	PM	0.6	11.2	0.0	11.2	< 0.1	< 0.1	0.0	< 0.1
Acute Resp. infections	PM	< 0.1	< 0.1	0.0	< 0.1	< 0.1	< 0.1	0.0	< 0.1
Road Traffic Injuries	RTI	-91.8	-4,145.6	-1,570.4	-5,716.1	-3.0	-3.0	-5.8	-3.4

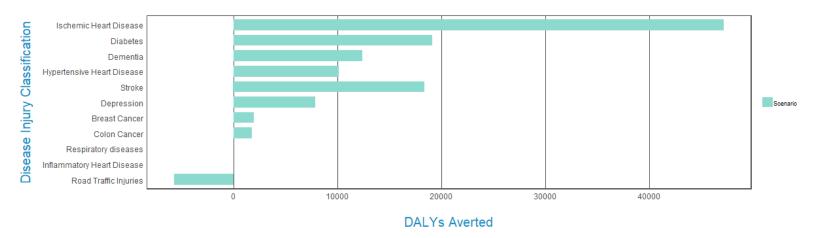
Pathway: PA, physical activity; PM, particulate matter

YLL, years of life lost; YLD, years living with disability; DALY, DALYS, disability adjusted life years; PAF, population attributable fraction Negative PAF and DALYs indicate an increase in the burden of disease and injury





Figure 2. Annual Change in the Burden of Disease by Health Pathway (PA + PM), California, CARB Scoping Plan (2030), 2010



Pathway: PA, physical activity; PM, particulate matter

YLL, years of life lost; YLD, years living with disability; DALY, DALYS, disability adjusted life years; PAF, population attributable fraction Negative PAF and DALYs indicate an increase in the burden of disease and injury

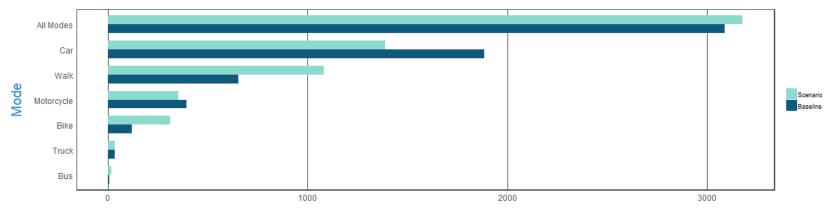




Table 3. Number of Fatal and Serious Injuries by Victim Mode, California, CARB Scoping Plan (2030), 2010

Mode	Baseline Total	Baseline Fatal	Baseline Serious	Scenario Total	Scenario Fatal	Scenario Serious	RR Fatal	RR Serious
Bike	905	119	786	2,393	311	2,082	2.6	2.6
Bus	32.7	5.3	27.5	98.1	15.1	83.1	2.8	3.0
Car	7,791	1,884	5,908	5,639	1,389	4,250	0.7	0.7
Motorcycle	2,117	393	1,724	1,874	350	1,524	0.9	0.9
Truck	171	34.9	136	171	34.9	136	1.0	1.0
Walk	2,408	653	1,755	3,936	1,081	2,856	1.7	1.6
All Modes	13,426	3,090	10,336	14,112	3,181	10,931	1.0	1.1

RR, Relative Risk



Fatal Injuries





Table 4. Rate of Fatal and Serious Injuries per Billion Miles and Victim Mode, California, CARB Scoping Plan (2030), 2010

Mode	Fatal		Ser	Serious	
Mode	Baseline	Scenario	Baseline	Scenario	
Bike	0.9	0.3	6.0	1.8	
Bus	< 0.1	< 0.1	0.2	0.2	
Car	< 0.1	< 0.1	0.2	0.2	
Motorcycle	3.3	3.0	14.6	12.9	
Truck	< 0.1	< 0.1	< 0.1	< 0.1	
Walk	2.0	0.8	5.3	2.1	
All Modes	6.3	4.2	26.4	17.3	





Table 1. Annual Changes in Active Travel Time, Deaths, Costs, and Carbon Emissions, Caltrans Strategic Management Plan (2020), 2010

Item	Baseline	Scenario
Active Travel Time (min/p/week)	40.6	85.0
Avoided Deaths		2,266
Health Cost Savings (\$ billion 2010)		2.4
Carbon Emissions (MMTY)	94.6	88.9

MMTY, million metric tons per year





Table 2. Per Capita Mean Weekly Active Travel Times (minutes), California, Caltrans Strategic Management Plan (2020), 2010

Mode	Baseline	Scenario
Walk	36.9	74.1
Bike	3.6	10.9
Total	40.6	85.0

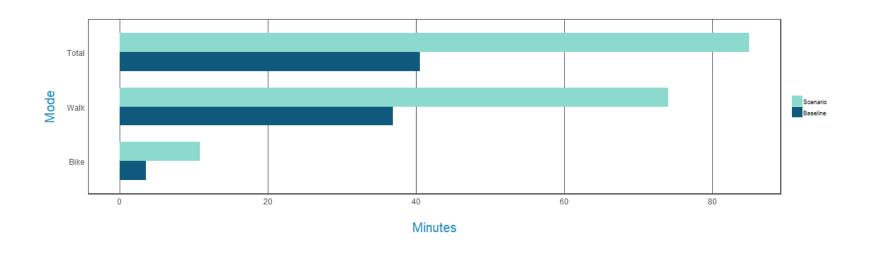






Table 3. Per Capita Mean Annual Travel Distance (Miles) by Mode, California, Caltrans Strategic Management Plan (2020), 2010

Mode	Baseline	Scenario
Active	334	707
Car	10,349	9,733
Transit	182	329
Total (incl. Truck & Motorcycle)	11,627	11,627

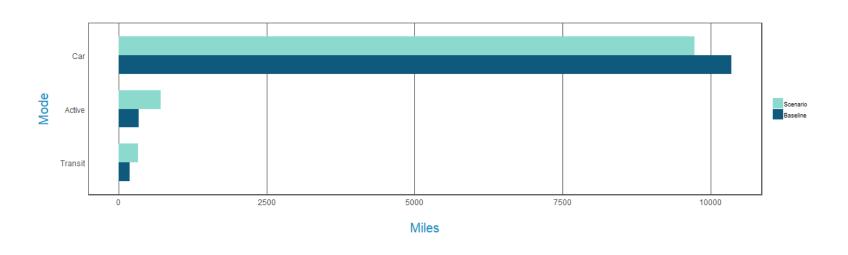






Table 4. Annual Change in the Burden of Disease by Health Pathway, California, Caltrans Strategic Management Plan (2020), 2010

Pathway	PAF %, Deaths	Deaths Avoided	PAF %, Dalys	Dalys Avoided
Physical Activity	2.8	2,414	2.6	46,889
Air Pollution	< 0.1	5.4	< 0.1	74.5
Road Traffic Injuries	-5.1	-153.3	-5.1	-8,519.6
Total	1.3	2,266	1.1	38,444

PAF, population attributable fraction; DALYS, disability adjusted life years Negative PAF and DALYs indicate an increase in the burden of disease and injury

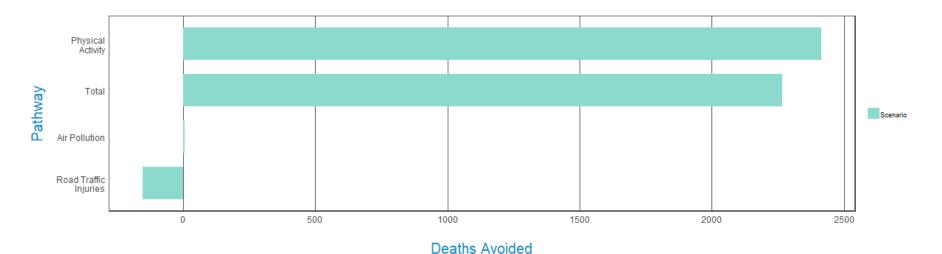






Table 5. Annual Cost Savings of Health Benefits (billions of 2010 dollars), California, Caltrans Strategic Management Plan (2020), 2010

Method	Dollars
Cost of Illness	2.4
Value of a Statistical Life	16.8

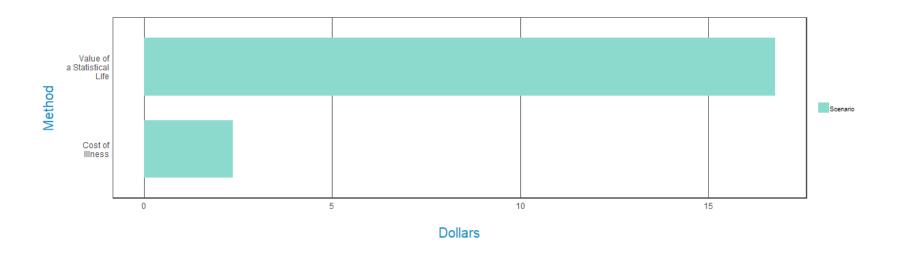






Table 6. Annual Car Carbon Emissions, California, Caltrans Strategic Management Plan (2020), 2010

CO <sub>2</sub> Emissions	Baseline	Scenario
Aggregate (Million Metric Tons)	94.6	88.9
Per Capita (Metric Tons)	2.7	2.6

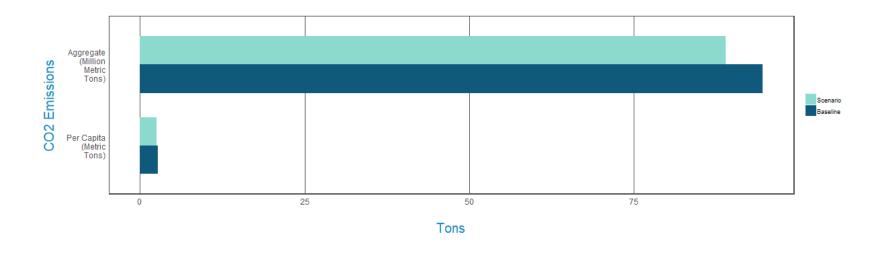






Table 1. Per Capita Mean Weekly Active Travel Time (minutes) by Age, California, Caltrans Strategic Management Plan (2020), 2010

Age Gender	Baseline	Scenario
00-04	41.3	85.7
05-14	44.6	93.1
15-29	39.6	83.5
30-44	45.1	94.7
45-59	40.0	84.4
60-69	39.1	81.0
70-79	30.1	62.2
80+	20.4	41.8
Male	39.6	84.8
Female	41.5	85.3

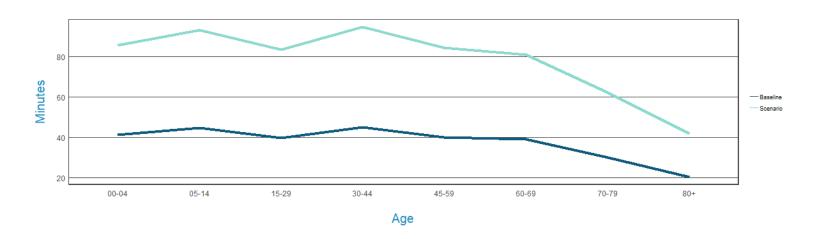






Table 2. Per Capita Mean Annual Travel Distance (Miles) by Mode, California, Caltrans Strategic Management Plan (2020), 2010

Mode	Baseline	Scenario
Bike	37.8	113
Bus	297	593
CarDriver	6,858	6,450
CarPassenger	3,491	3,283
Motorcycle	34.1	34.1
Rail	148	295
Truck	665	665
Walk	96.3	193

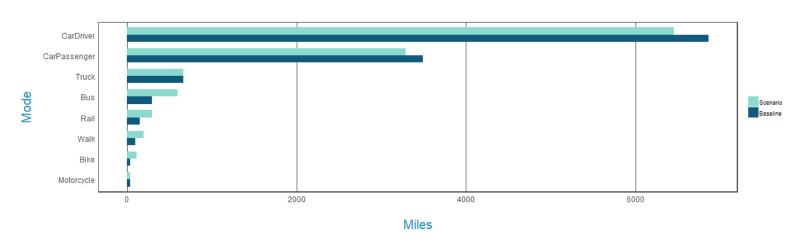






Table 3. Annual Number of Deaths Averted by Cause, California, Caltrans Strategic Management Plan (2020), 2010

Cause	PAF %	Deaths
Heart Disease and Stroke	2.8	1,672
Dementia	2.8	466
Diabetes	3.0	203
Colon Cancer	1.1	40.7
Breast Cancer	0.9	36.3
Lung Cancer	< 0.1	0.8
Respiratory diseases	< 0.1	0.7
Depression	0.0	0.0
Road Traffic Injuries	-4.9	-153.3
Total	1.9	2,266

PAF, population attributable fraction; DALYS, disability adjusted life years Negative PAF and DALYs indicate an increase in the burden of disease and injury

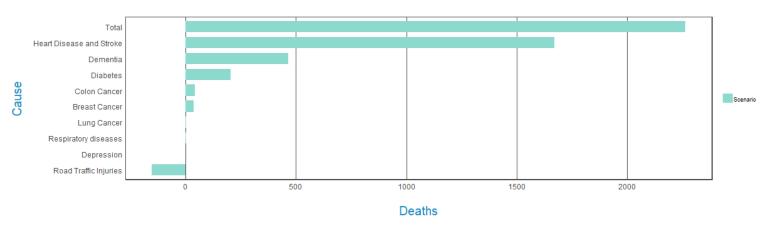






Table 4. Annual Cost Savings of Health Benefits (millions of 2010 dollars), California, Caltrans Strategic Management Plan (2020), 2010

Cause	COI	VSL
Heart Disease	1,481	9,747
Dementia	478	3,447
Stroke	166	2,625
Diabetes	719	1,502
Colon Cancer	25.4	301
Breast Cancer	21.0	269
Lung Cancer	0.4	5.8
Asthma and COPD	0.1	5.3
Depression	91.2	0.0
Road Traffic Injuries	-619.8	-1,134.5
Total	2,362	16,768

COI, cost of illness; VSL, value of a statistical life Negative numbers indicate an increase in the burden of disease and injury/costs

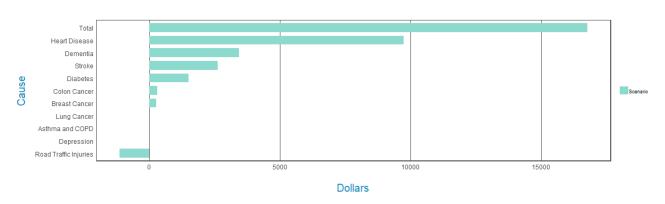






Table 1. Per Capita Mean Weekly Active Travel Time (minutes) by Age and Gender, California, Caltrans Strategic Management Plan (2020), 2010

Sex	Age Group	Population	Baseline Walk	Baseline Bike	Baseline Total	Scenario Walk	Scenario Bike	Scenario Total
Male	00-04	1,211,552	38.8	3.4	42.2	77.8	10.2	88.0
Male	05-14	2,439,675	41.7	4.2	45.9	83.6	12.6	96.3
Male	15-29	3,988,060	32.3	6.0	38.3	64.8	18.0	82.8
Male	30-44	3,658,369	33.1	5.8	38.9	66.4	17.4	83.8
Male	45-59	3,395,970	34.0	6.3	40.3	68.2	18.9	87.1
Male	60-69	1,348,746	36.2	4.4	40.7	72.7	13.3	86.0
Male	70-79	709,340	26.2	3.0	29.2	52.5	9.1	61.5
Male	+08	413,653	22.4	1.9	24.3	45.0	5.8	50.7
Female	00-04	1,158,662	37.9	2.4	40.3	76.1	7.3	83.3
Female	05-14	2,333,558	40.6	2.8	43.4	81.4	8.3	89.7
Female	15-29	3,750,401	39.2	1.9	41.0	78.6	5.6	84.2
Female	30-44	3,623,524	48.9	2.6	51.4	98.0	7.7	106
Female	45-59	3,492,692	37.4	2.2	39.6	75.0	6.8	81.8
Female	60-69	1,502,454	36.8	0.9	37.7	73.7	2.7	76.4
Female	70-79	877,407	30.0	0.8	30.8	60.2	2.5	62.7
Female	+08	681,201	17.8	0.2	18.1	35.7	0.7	36.4
Both	Total	34,585,264	36.9	3.6	40.6	74.1	10.9	85.0





Figure 1. Per Capita Mean Weekly Active Travel Time (minutes) by Age and Gender, California, Caltrans Strategic Management Plan (2020), 2010

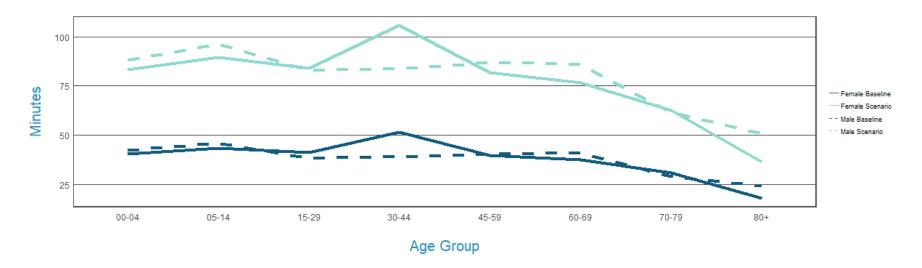






Table 2. Annual Change in the Burden of Disease by Health Pathway, California, Caltrans Strategic Management Plan (2020), 2010

Disease Injury Classification	Pathway	Change Deaths	Change YLL	Change YLD	Change DALY	PAF %, Deaths	PAF %, YLL	PAF %, YLD	PAF %, DALY
All Causes	PA	3,314	31,054	0.0	31,054	1.6	0.8	0.0	0.5
Ischemic Heart Disease	PA	1,087	16,986	1,647	18,633	3.0	3.5	3.6	3.5
Dementia	PA	466	3,000	2,025	5,024	2.8	2.5	2.5	2.5
Stroke	PA	354	5,586	1,861	7,447	2.9	3.5	3.6	3.5
Hypertensive Heart Disease	PA	228	3,972	113	4,085	3.0	3.7	3.3	3.7
Diabetes	PA	203	4,091	3,624	7,714	3.0	3.5	3.6	3.6
Colon Cancer	PA	40.7	576	43.4	620	1.1	0.8	1.0	0.9
Breast Cancer	PA	36.3	572	131	703	0.9	0.7	0.9	0.7
Depression	PA	0.0	0.0	2,662	2,662	0.0	0.0	0.8	0.8
Ischemic Heart Disease	PA+PM	1,089	17,017	1,647	18,664	3.0	3.5	3.6	3.5
Stroke	PA+PM	355	5,596	1,861	7,457	2.9	3.5	3.6	3.5
Hypertensive Heart Disease	PA+PM	228	3,979	113	4,092	3.0	3.7	3.3	3.7
All Causes	PM	13.5	208	0.0	208	< 0.1	< 0.1	0.0	< 0.1
Ischemic Heart Disease	PM	2.4	31.8	0.0	31.8	< 0.1	< 0.1	0.0	< 0.1
Stroke	PM	0.8	10.1	0.0	10.1	< 0.1	< 0.1	0.0	< 0.1
Lung Cancer	PM	0.8	13.2	0.0	13.2	< 0.1	< 0.1	0.0	< 0.1
Respiratory diseases	PM	0.7	8.7	0.0	8.7	< 0.1	< 0.1	0.0	< 0.1
Hypertensive Heart Disease	PM	0.5	7.1	0.0	7.1	< 0.1	< 0.1	0.0	< 0.1
Inflammatory Heart Disease	PM	0.2	3.6	0.0	3.6	< 0.1	< 0.1	0.0	< 0.1
Acute resp infections	PM	< 0.1	< 0.1	0.0	< 0.1	< 0.1	< 0.1	0.0	< 0.1
Road Traffic Injuries	RTI	-153.3	-6,926.2	-1,593.4	-8,519.6	-4.9	-4.9	-5.8	-5.1

Pathway: PA, physical activity; PM, particulate matter

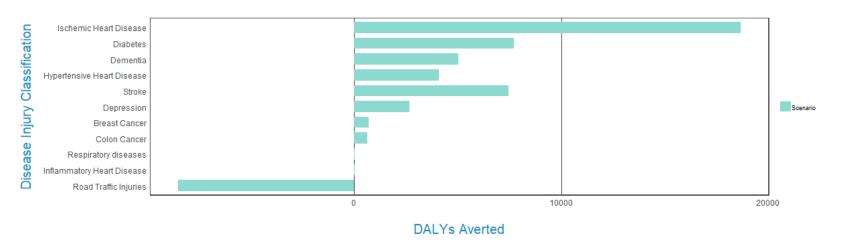
YLL, years of life lost; YLD, years living with disability; DALY, DALYS, disability adjusted life years; PAF, population attributable fraction Negative PAF and DALYs indicate an increase in the burden of disease and injury





#### High Level Caltrans Strategic Management Plan (2020), California

Figure 2. Annual Change in the Burden of Disease by Health Pathway (PA + PM), California, Caltrans Strategic Management Plan (2020), 2010



Pathway: PA, physical activity; PM, particulate matter

YLL, years of life lost; YLD, years living with disability; DALY, DALYS, disability adjusted life years; PAF, population attributable fraction Negative PAF and DALYs indicate an increase in the burden of disease and injury



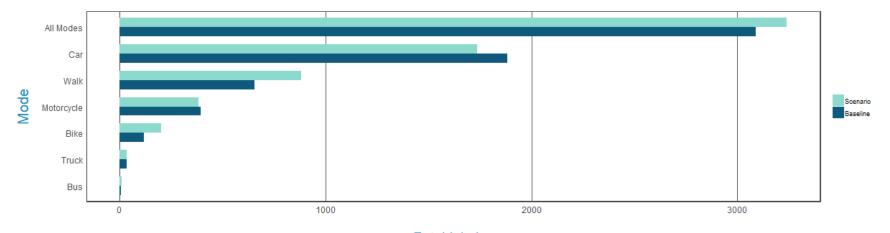


## High Level Caltrans Strategic Management Plan (2020), California

Table 3. Number of Fatal and Serious Injuries by Victim Mode, California, Caltrans Strategic Management Plan (2020), 2010

Mode	Baselin e Total	Baseline Fatal	Baseline Serious	Scenario Total	Scenario Fatal	Scenario Serious	RR Fatal	RR Serious
Bike	905	119	786	1,522	200	1,323	1.7	1.7
Bus	32.7	5.3	27.5	55.9	8.8	47.1	1.7	1.7
Car	7,791	1,884	5,908	7,145	1,736	5,409	0.9	0.9
Motorcycle	2,117	393	1,724	2,048	381	1,667	1.0	1.0
Truck	171	34.9	136	171	34.9	136	1.0	1.0
Walk	2,408	653	1,755	3,239	881	2,358	1.3	1.3
All Modes	13,426	3,090	10,336	14,181	3,242	10,940	1.0	1.1

RR. Relative Risk



Fatal Injuries





## High Level Caltrans Strategic Management Plan (2020), California

Table 4. Rate of Fatal and Serious Injuries per Billion Miles and Victim Mode, California, Caltrans Strategic Management Plan (2020), 2010

Mode	Fatal		Serious	
Mode	Baseline	Scenario	Baseline	Scenario
Bike	0.9	0.5	6.0	3.4
Bus	< 0.1	< 0.1	0.2	0.2
Car	< 0.1	< 0.1	0.2	0.2
Motorcycle	3.3	3.2	14.6	14.1
Truck	< 0.1	< 0.1	< 0.1	< 0.1
Walk	2.0	1.3	5.3	3.5
All Modes	6.3	5.2	26.4	21.5





# Summary Level <a href="Sustainable Communities Strategies">Sustainable Communities Strategies</a> (2040), California

Table 1. Annual Changes in Active Travel Time, Deaths, Costs, and Carbon Emissions, Sustainable Communities Strategies (2040), 2010

Item	Baseline	Scenario
Active Travel Time (min/p/week)	40.6	53.7
Avoided Deaths		919
Health Cost Savings (\$ billion 2010)		1.1
Carbon Emissions (MMTY)	94.6	86.8

MMTY, million metric tons per year





Table 2. Per Capita Mean Weekly Active Travel Times (minutes), California, Sustainable Communities Strategies (2040), 2010

Mode	Baseline	Scenario
Walk	36.9	48.2
Bike	3.6	5.5
Total	40.6	53.7

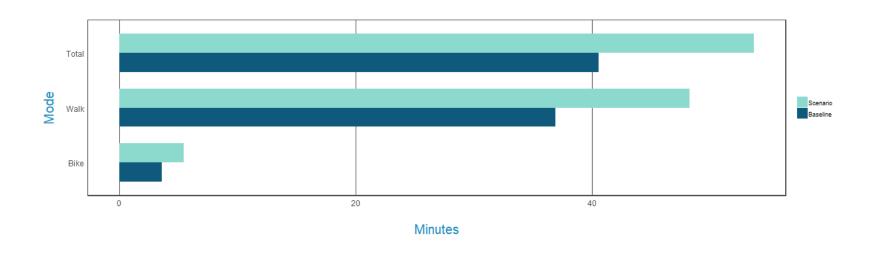






Table 3. Per Capita Mean Annual Travel Distance (Miles) by Mode, California, Sustainable Communities Strategies (2040), 2010

Mode	Baseline	Scenario
Active	334	443
Car	10,349	9,512
Transit	182	278
Total (incl. Truck & Motorcycle)	11,627	11,027

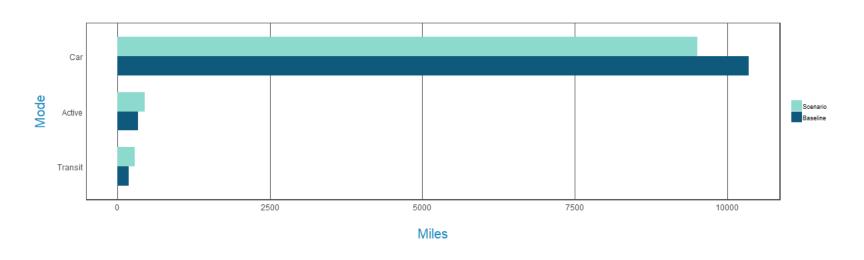






Table 4. Annual Change in the Burden of Disease by Health Pathway, California, Sustainable Communities Strategies (2040), 2010

Pathway	PAF %, Deaths	Deaths Avoided	PAF %, Dalys	Dalys Avoided
Physical Activity	1.0	880	0.8	14,684
Air Pollution	< 0.1	7.5	< 0.1	102
Road Traffic Injuries	1.0	31.9	1.0	1,680
Total	0.5	919	0.5	16,467

PAF, population attributable fraction; DALYS, disability adjusted life years Negative PAF and DALYs indicate an increase in the burden of disease and injury

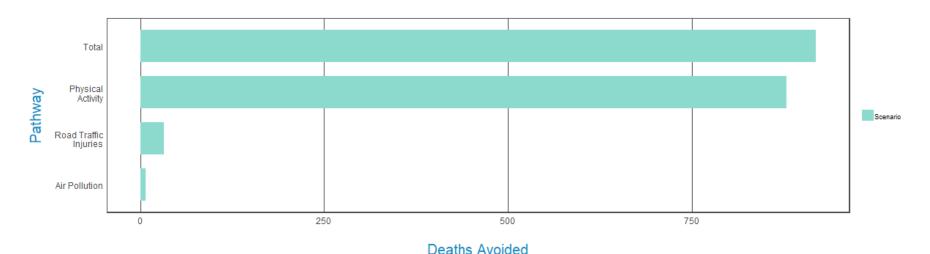






Table 5. Annual Cost Savings of Health Benefits (billions of 2010 dollars), California, Sustainable Communities Strategies (2040), 2010

Method	Dollars
Cost of Illness	1.1
Value of a Statistical Life	6.8







Table 6. Annual Car Carbon Emissions, California, Sustainable Communities Strategies (2040), 2010

CO <sub>2</sub> Emissions	Baseline	Scenario
Aggregate (Million Metric Tons)	94.6	86.8
Per Capita (Metric Tons)	2.7	2.5

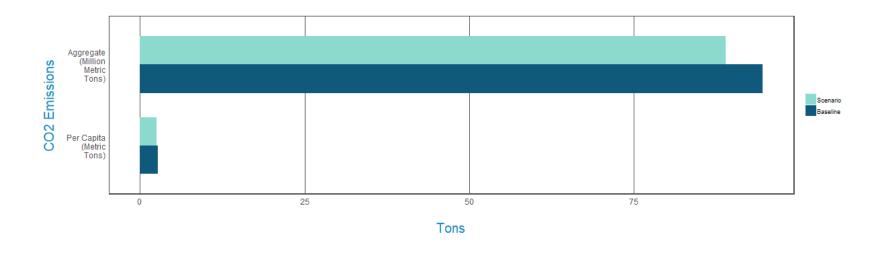






Table 1. Per Capita Mean Weekly Active Travel Time (minutes) by Age, California, Sustainable Communities Strategies (2040), 2010

Age Gender	Baseline	Scenario
00-04	41.3	54.5
05-14	44.6	59.0
15-29	39.6	52.6
30-44	45.1	59.8
45-59	40.0	53.1
60-69	39.1	51.6
70-79	30.1	39.7
80+	20.4	26.8
Male	39.6	52.8
Female	41.5	54.6

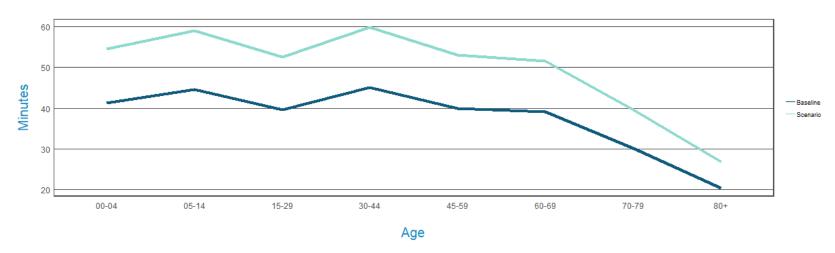






Table 2. Per Capita Mean Annual Travel Distance (Miles) by Mode, California, Sustainable Communities Strategies (2040), 2010

Mode	Baseline	Scenario
Bike	37.8	57.0
Bus	297	386
CarDriver	6,858	6,297
CarPassenger	3,491	3,216
Motorcycle	34.1	32.7
Rail	148	245
Truck	665	668
Walk	96.3	125

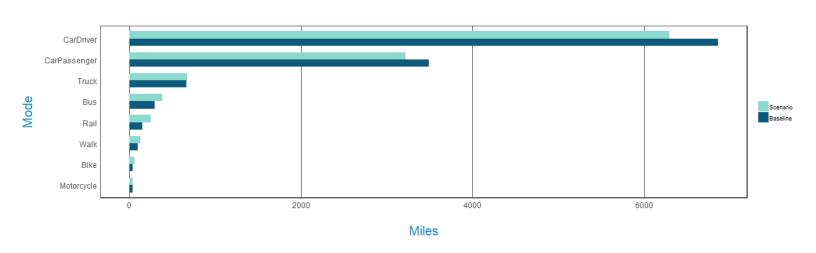






Table 3. Annual Number of Deaths Averted by Cause, California, Sustainable Communities Strategies (2040), 2010

Cause	PAF %	Deaths
Heart Disease and Stroke	1.0	594
Dementia	1.2	198
Diabetes	0.9	64.1
Road Traffic Injuries	1.0	31.9
Colon Cancer	0.4	14.6
Breast Cancer	0.3	13.9
Lung Cancer	< 0.1	1.1
Respiratory diseases	< 0.1	1.0
Depression	0.0	0.0
Total	0.8	919

PAF, population attributable fraction; DALYS, disability adjusted life years Negative PAF and DALYs indicate an increase in the burden of disease and injury

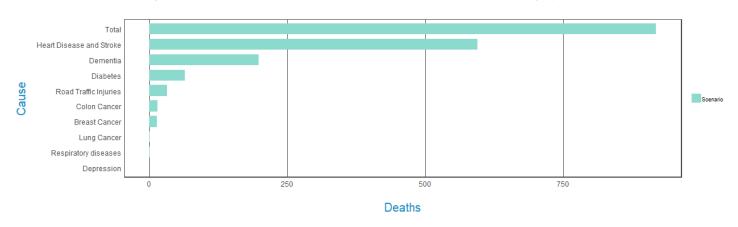


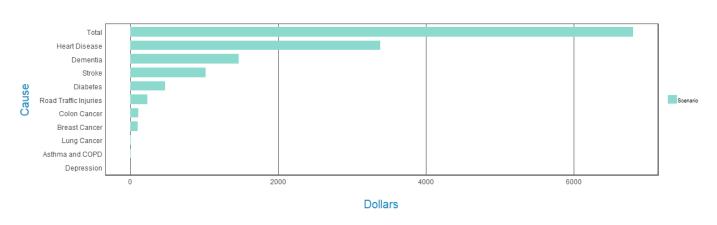




Table 4. Annual Cost Savings of Health Benefits (millions of 2010 dollars), California, Sustainable Communities Strategies (2040), 2010

Cause	COI	VSL
Heart Disease	1,481	9,747
Dementia	478	3,447
Stroke	166	2,625
Diabetes	719	1,502
Colon Cancer	25.4	301
Breast Cancer	21.0	269
Lung Cancer	0.4	5.8
Asthma and COPD	0.1	5.3
Depression	91.2	0.0
Road Traffic Injuries	-619.8	-1,134.5
Total	2,362	16,768

COI, cost of illness; VSL, value of a statistical life Negative numbers indicate an increase in the burden of disease and injury/costs







## High Level <a href="Sustainable Communities Strategies">Sustainable Communities Strategies (2040), California</a>

Table 1. Per Capita Mean Weekly Active Travel Time (minutes) by Age and Gender, California, Sustainable Communities Strategies (2040), 2010

Sex	Age Group	Population	Baseline Walk	Baseline Bike	Baseline Total	Scenario Walk	Scenario Bike	Scenario Total
Male	00-04	1,211,552	38.8	3.4	42.2	50.6	5.1	55.8
Male	05-14	2,439,675	41.7	4.2	45.9	54.4	6.4	60.8
Male	15-29	3,988,060	32.3	6.0	38.3	42.2	9.1	51.2
Male	30-44	3,658,369	33.1	5.8	38.9	43.2	8.8	52.0
Male	45-59	3,395,970	34.0	6.3	40.3	44.4	9.5	53.9
Male	60-69	1,348,746	36.2	4.4	40.7	47.3	6.7	54.0
Male	70-79	709,340	26.2	3.0	29.2	34.2	4.6	38.7
Male	80+	413,653	22.4	1.9	24.3	29.3	2.9	32.2
Female	00-04	1,158,662	37.9	2.4	40.3	49.5	3.6	53.2
Female	05-14	2,333,558	40.6	2.8	43.4	53.0	4.2	57.2
Female	15-29	3,750,401	39.2	1.9	41.0	51.1	2.8	54.0
Female	30-44	3,623,524	48.9	2.6	51.4	63.8	3.9	67.7
Female	45-59	3,492,692	37.4	2.2	39.6	48.8	3.4	52.2
Female	60-69	1,502,454	36.8	0.9	37.7	48.0	1.4	49.4
Female	70-79	877,407	30.0	0.8	30.8	39.2	1.3	40.4
Female	80+	681,201	17.8	0.2	18.1	23.3	0.4	23.6
Both	Total	34,585,264	36.9	3.6	40.6	48.2	5.5	53.7





Figure 1. Per Capita Mean Weekly Active Travel Time (minutes) by Age and Gender, California, Sustainable Communities Strategies (2040), 2010

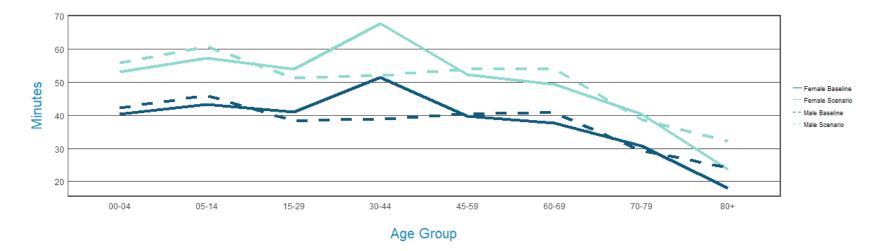






Table 2. Annual Change in the Burden of Disease by Health Pathway, California, Sustainable Communities Strategies (2040), 2010

Disease Injury Classification	Pathway	Change Deaths	Change YLL	Change YLD	Change DALY	PAF %, Deaths	PAF %, YLL	PAF %, YLD	PAF %, DALY
All Causes	PA	1,385	11,603	0.0	11,603	0.7	0.3	0.0	0.2
Ischemic Heart Disease	PA	366	4,806	495	5,301	1.0	1.0	1.1	1.0
Dementia	PA	198	1,226	824	2,050	1.2	1.0	1.0	1.0
Stroke	PA	136	1,821	584	2,405	1.1	1.1	1.1	1.1
Hypertensive Heart Disease	PA	87.2	1,250	39.0	1,289	1.1	1.2	1.2	1.2
Diabetes	PA	64.1	1,215	1,140	2,355	0.9	1.0	1.1	1.1
Colon Cancer	PA	14.6	187	15.1	202	0.4	0.3	0.3	0.3
Breast Cancer	PA	13.9	191	48.9	240	0.3	0.2	0.3	0.2
Depression	PA	0.0	0.0	841	841	0.0	0.0	0.2	0.2
Ischemic Heart Disease	PA+PM	369	4,849	495	5,344	1.0	1.0	1.1	1.0
Stroke	PA+PM	138	1,835	584	2,419	1.1	1.1	1.1	1.1
Hypertensive Heart Disease	PA+PM	87.9	1,260	39.0	1,299	1.2	1.2	1.2	1.2
All Causes	PM	18.5	287	0.0	287	< 0.1	< 0.1	0.0	< 0.1
Ischemic Heart Disease	PM	3.3	43.7	0.0	43.7	< 0.1	< 0.1	0.0	< 0.1
Stroke	PM	1.1	13.9	0.0	13.9	< 0.1	< 0.1	0.0	< 0.1
Lung Cancer	PM	1.1	18.2	0.0	18.2	< 0.1	< 0.1	0.0	< 0.1
Respiratory diseases	PM	1.0	12.0	0.0	12.0	< 0.1	< 0.1	0.0	< 0.1
Hypertensive Heart Disease	PM	0.7	9.7	0.0	9.7	< 0.1	< 0.1	0.0	< 0.1
Inflammatory Heart Disease	PM	0.3	4.9	0.0	4.9	< 0.1	< 0.1	0.0	< 0.1
Acute resp infections	PM	< 0.1	< 0.1	0.0	< 0.1	< 0.1	< 0.1	0.0	< 0.1
Road Traffic Injuries	RTI	31.9	1,439	241	1,680	1.0	1.0	0.9	1.0

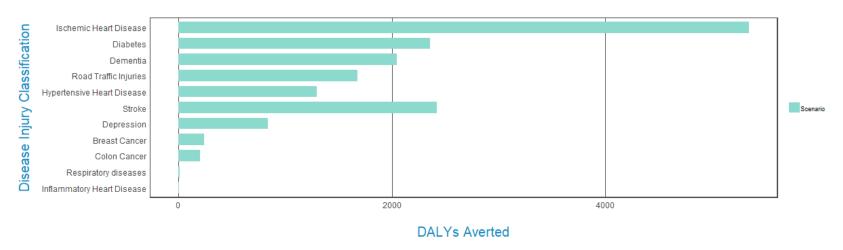
Pathway: PA, physical activity; PM, particulate matter

YLL, years of life lost; YLD, years living with disability; DALY, DALYS, disability adjusted life years; PAF, population attributable fraction Negative PAF and DALYs indicate an increase in the burden of disease and injury





Figure 2. Annual Change in the Burden of Disease by Health Pathway (PA + PM), California, Sustainable Communities Strategies (2040), 2010



Pathway: PA, physical activity; PM, particulate matter

YLL, years of life lost; YLD, years living with disability; DALY, DALYS, disability adjusted life years; PAF, population attributable fraction Negative PAF and DALYs indicate an increase in the burden of disease and injury

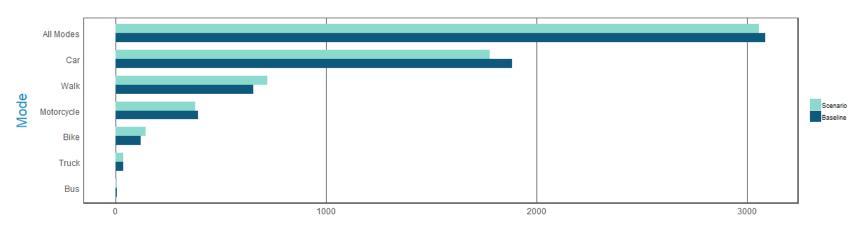




Table 3. Number of Fatal and Serious Injuries by Victim Mode, California, Sustainable Communities Strategies (2040), 2010

Mode	Baseline Total	Baseline Fatal	Baseline Serious	Scenario Total	Scenario Fatal	Scenario Serious	RR Fatal	RR Serious
Bike	905	119	786	1,084	143	942	1.2	1.2
Bus	32.7	5.3	27.5	40.0	6.4	33.6	1.2	1.2
Car	7,791	1,884	5,908	7,328	1,777	5,551	0.9	0.9
Motorcycle	2,117	393	1,724	2,027	377	1,650	1.0	1.0
Truck	171	34.9	136	172	35.0	137	1.0	1.0
Walk	2,408	653	1,755	2,652	720	1,932	1.1	1.1
All Modes	13,426	3,090	10,336	13,303	3,058	10,245	1.0	1.0

RR, Relative Risk



Fatal Injuries





Table 4. Rate of Fatal and Serious Injuries per Billion Miles and Victim Mode, California, Sustainable Communities Strategies (2040), 2010

Mode	F	atal	Serious	
Ivioue	Baseline	Scenario	Baseline	Scenario
Bike	0.9	0.7	6.0	4.8
Bus	< 0.1	< 0.1	0.2	0.2
Car	< 0.1	< 0.1	0.2	0.3
Motorcycle	3.3	3.3	14.6	14.6
Truck	< 0.1	< 0.1	< 0.1	< 0.1
Walk	2.0	1.7	5.3	4.5
All Modes	6.3	5.8	26.4	24.3





Table 1. Annual Changes in Active Travel Time, Deaths, Costs, and Carbon Emissions, California, U.S. Surgeon General Recommendation, 2010

Item	Baseline	Scenario
Active Travel Time (min/p/week)	40.6	270
Avoided Deaths		9,214
Health Cost Savings (\$ billion 2010)		13.5
Carbon Emissions (MMTY)	94.6	80.0

MMTY, million metric tons per year





Table 2. Per Capita Mean Weekly Active Travel Times (minutes), California, U.S. Surgeon General Recommendation, 2010

Mode	Baseline	Scenario
Walk	36.9	135
Bike	3.6	135
Total	40.6	270

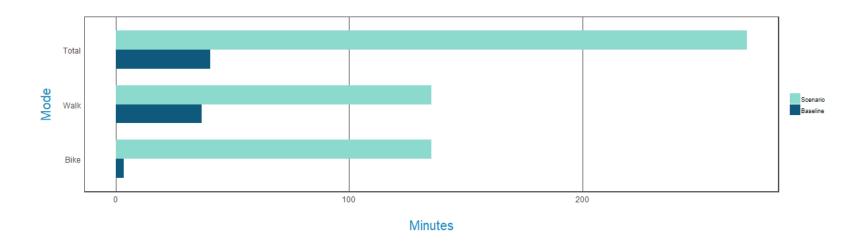






Table 3. Per Capita Mean Annual Travel Distance (Miles) by Mode, California, U.S. Surgeon General Recommendation, 2010

Mode	Baseline	Scenario
Active	334	1,703
Car	10,349	8,759
Transit	182	182
Total (incl. Truck & Motorcycle)	11,627	11,661

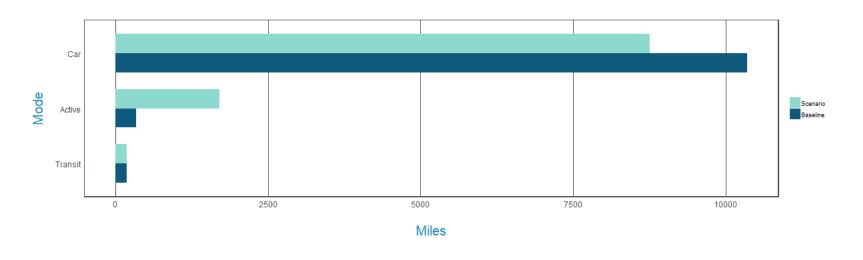






Table 4. Annual Change in the Burden of Disease by Health Pathway, California, U.S. Surgeon General Recommendation, 2010

Pathway	PAF %, Deaths	Deaths Avoided	PAF %, Dalys	Dalys Avoided
Physical Activity	9.8	8,616	10.3	184,069
Air Pollution	< 0.1	14.0	< 0.1	192
Road Traffic Injuries	16.7	585	16.7	28,034
Total	5.3	9,215	6.2	212,296

PAF, population attributable fraction; DALYS, disability adjusted life years Negative PAF and DALYs indicate an increase in the burden of disease and injury

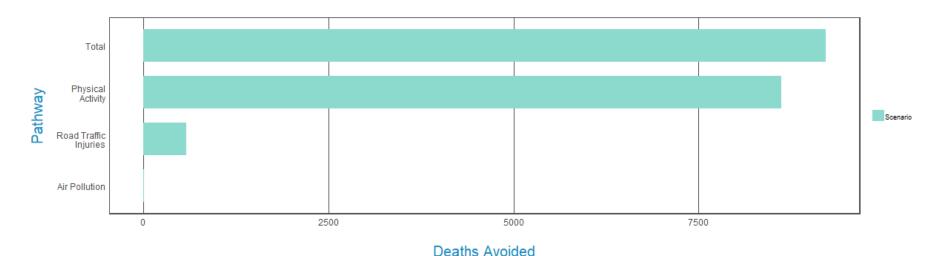






Table 5. Annual Cost Savings of Health Benefits (billions of 2010 dollars), California, U.S. Surgeon General Recommendation, 2010

Method	Dollars
Cost of Illness	13.5
Value of a Statistical Life	68.2

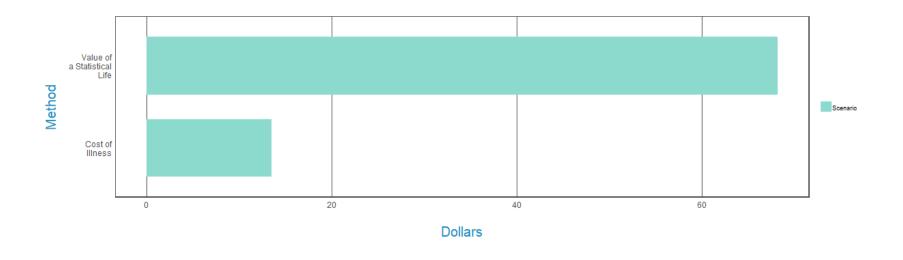






Table 6. Annual Car Carbon Emissions, California, U.S. Surgeon General Recommendation, 2010

CO <sub>2</sub> Emissions	Baseline	Scenario
Aggregate (Million Metric Tons)	94.6	80.0
Per Capita (Metric Tons)	2.7	2.3

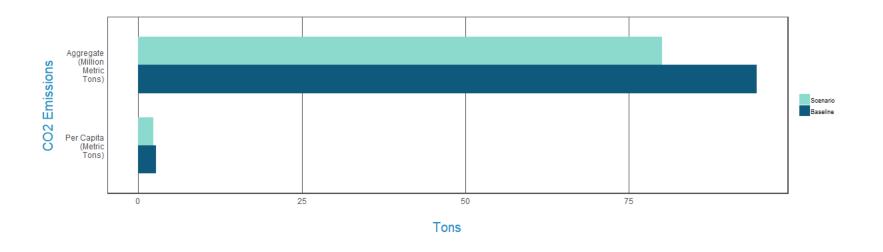






Table 1. Per Capita Mean Weekly Active Travel Time (minutes) by Age, California, U.S. Surgeon General Recommendation, 2010

Age Gender	Baseline	Scenario
00-04	41.3	249
05-14	44.6	281
15-29	39.6	279
30-44	45.1	306
45-59	40.0	289
60-69	39.1	230
70-79	30.1	171
80+	20.4	104
Male	39.6	321
Female	41.5	221

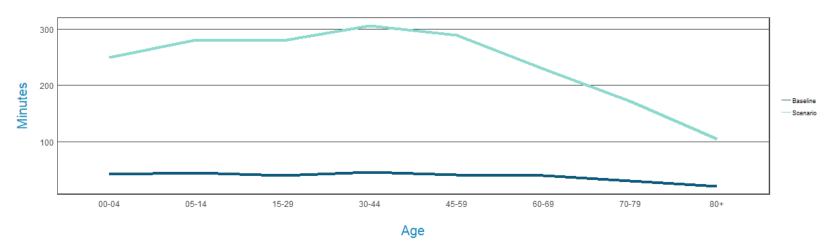
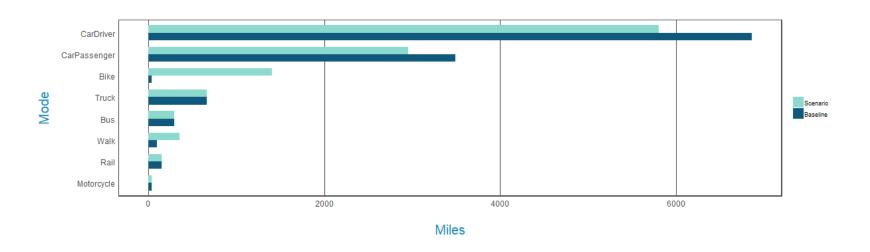






Table 2. Per Capita Mean Annual Travel Distance (Miles) by Mode, California, U.S. Surgeon General Recommendation, 2010

Mode	Baseline	Scenario
Bike	37.8	1,407
Bus	297	297
CarDriver	6,858	5,804
CarPassenger	3,491	2,955
Motorcycle	34.1	34.1
Rail	148	148
Truck	665	665
Walk	96.3	352







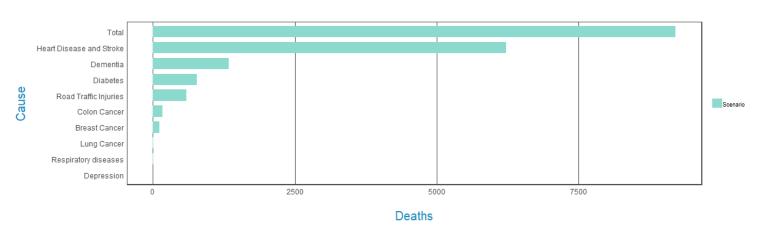
#### Medium Level

#### U.S. Surgeon General Recommendation, California

Table 3. Annual Number of Deaths Averted by Cause, California, U.S. Surgeon General Recommendation, 2010

Cause	PAF %	Deaths
Heart Disease and Stroke	10.5	6,230
Dementia	8.1	1,334
Diabetes	11.5	779
Road Traffic Injuries	18.8	585
Colon Cancer	4.4	168
Breast Cancer	2.9	114
Lung Cancer	< 0.1	2.0
Respiratory diseases	< 0.1	1.8
Depression	0.0	0.0
Total	7.9	9,214

PAF, population attributable fraction; DALYS, disability adjusted life years Negative PAF and DALYs indicate an increase in the burden of disease and injury







#### **Medium Level**

#### U.S. Surgeon General Recommendation, California

Table 4. Annual Cost Savings of Health Benefits (millions of 2010 dollars), California, U.S. Surgeon General Recommendation, 2010

Cause	COI	VSL
eart Disease	5,900	36,753
Dementia	1,475	9,871
Stroke	624	9,348
Diabetes	2,793	5,763
Road Traffic Injuries	2,039	4,332
Colon Cancer	126	1,240
Breast Cancer	76.9	844
Lung Cancer	1.0	15.1
Asthma and COPD	0.4	13.7
Depression	455	0.0
Total	13,491	68,179

COI, cost of illness; VSL, value of a statistical life Negative numbers indicate an increase in the burden of disease and injury/costs

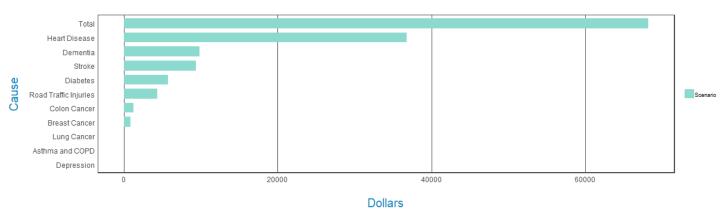






Table 1. Per Capita Mean Weekly Active Travel Time (minutes) by Age and Gender, California, U.S. Surgeon General Recommendation, 2010

Sex	Age Group	Population	Baseline Walk	Baseline Bike	Baseline Total	Scenario Walk	Scenario Bike	Scenario Total
Male	00-04	1,211,552	38.8	3.4	42.2	142	127	269
Male	05-14	2,439,675	41.7	4.2	45.9	153	157	310
Male	15-29	3,988,060	32.3	6.0	38.3	118	223	342
Male	30-44	3,658,369	33.1	5.8	38.9	121	216	337
Male	45-59	3,395,970	34.0	6.3	40.3	124	235	359
Male	60-69	1,348,746	36.2	4.4	40.7	133	165	298
Male	70-79	709,340	26.2	3.0	29.2	95.8	112	208
Male	80+	413,653	22.4	1.9	24.3	82.0	71.6	154
Female	00-04	1,158,662	37.9	2.4	40.3	139	90.0	229
Female	05-14	2,333,558	40.6	2.8	43.4	149	103	252
Female	15-29	3,750,401	39.2	1.9	41.0	143	69.7	213
Female	30-44	3,623,524	48.9	2.6	51.4	179	95.5	274
Female	45-59	3,492,692	37.4	2.2	39.6	137	83.8	221
Female	60-69	1,502,454	36.8	0.9	37.7	134	33.9	168
Female	70-79	877,407	30.0	0.8	30.8	110	31.1	141
Female	80+	681,201	17.8	0.2	18.1	65.2	8.9	74.1
Both	Total	34,585,264	36.9	3.6	40.6	135	135	270





#### High Level U.S. Surgeon General Recommendation, California

Figure 1. Per Capita Mean Weekly Active Travel Time (minutes) by Age and Gender, California, U.S. Surgeon General Recommendation, 2010

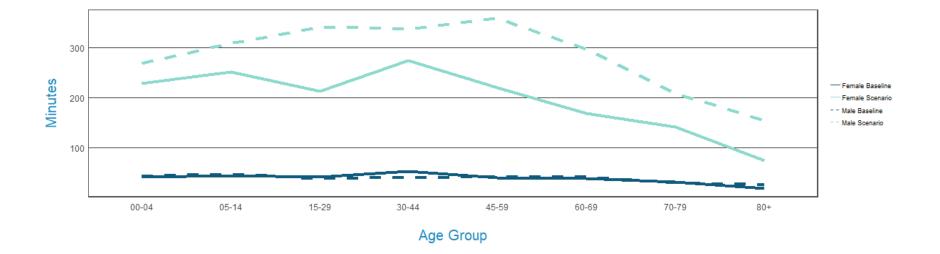






Table 2. Annual Change in the Burden of Disease by Health Pathway, California, U.S. Surgeon General Recommendation, 2010

Disease Injury Classification	Pathway	Change Deaths	Change YLL	Change YLD	Change DALY	PAF %, Deaths	PAF %, YLL	PAF %, YLD	PAF %, DALY
All Causes	PA	9,923	118,659	0.0	118,659	4.7	3.2	0.0	1.8
Ischemic Heart Disease	PA	4,130	69,097	6,456	75,552	11.2	14.2	14.1	14.2
Dementia	PA	1,334	9,231	6,279	15,510	8.1	7.8	7.7	7.8
Stroke	PA	1,261	21,044	7,060	28,103	10.3	13.0	13.6	13.1
Hypertensive Heart Disease	PA	830	15,605	414	16,019	10.9	14.5	12.3	14.4
Diabetes	PA	779	16,118	13,842	29,960	11.5	13.8	13.9	13.8
Colon Cancer	PA	168	2,887	191	3,078	4.4	4.2	4.3	4.2
Breast Cancer	PA	114	2,153	421	2,574	2.9	2.5	2.8	2.5
Depression	PA	0.0	0.0	13,272	13,272	0.0	0.0	3.9	3.9
Ischemic Heart Disease	PA+PM	4,136	69,167	6,456	75,623	11.2	14.2	14.1	14.2
Stroke	PA+PM	1,263	21,066	7,060	28,126	10.3	13.0	13.6	13.1
Hypertensive Heart Disease	PA+PM	831	15,621	414	16,035	10.9	14.5	12.3	14.4
All Causes	PM	34.7	538	0.0	538	< 0.1	< 0.1	0.0	< 0.1
Ischemic Heart Disease	PM	6.3	82.1	0.0	82.1	< 0.1	< 0.1	0.0	< 0.1
Stroke	PM	2.1	26.2	0.0	26.2	< 0.1	< 0.1	0.0	< 0.1
Lung Cancer	PM	2.0	34.2	0.0	34.2	< 0.1	< 0.1	0.0	< 0.1
Respiratory diseases	PM	1.8	22.5	0.0	22.5	< 0.1	< 0.1	0.0	< 0.1
Hypertensive Heart Disease	PM	1.3	18.2	0.0	18.2	< 0.1	< 0.1	0.0	< 0.1
Inflammatory Heart Disease	PM	0.5	9.2	0.0	9.2	< 0.1	< 0.1	0.0	< 0.1
Acute resp infections	PM	< 0.1	< 0.1	0.0	< 0.1	< 0.1	< 0.1	0.0	< 0.1
Road Traffic Injuries	RTI	585	26,446	1,588	28,034	18.8	18.8	5.8	16.7

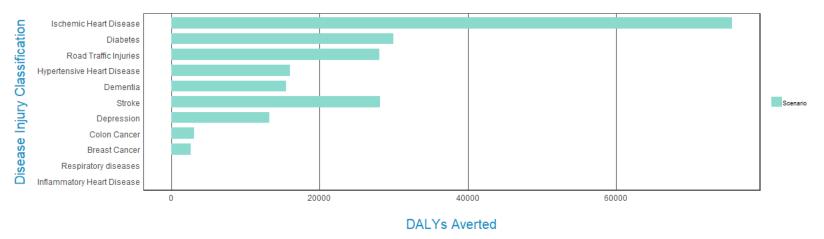
Pathway: PA, physical activity; PM, particulate matter

YLL, years of life lost; YLD, years living with disability; DALY, DALYS, disability adjusted life years; PAF, population attributable fraction Negative PAF and DALYs indicate an increase in the burden of disease and injury





Figure 2. Annual Change in the Burden of Disease by Health Pathway (PA + PM), California, U.S. Surgeon General Recommendation, 2010



Pathway: PA, physical activity; PM, particulate matter

YLL, years of life lost; YLD, years living with disability; DALY, DALYS, disability adjusted life years; PAF, population attributable fraction Negative PAF and DALYs indicate an increase in the burden of disease and injury





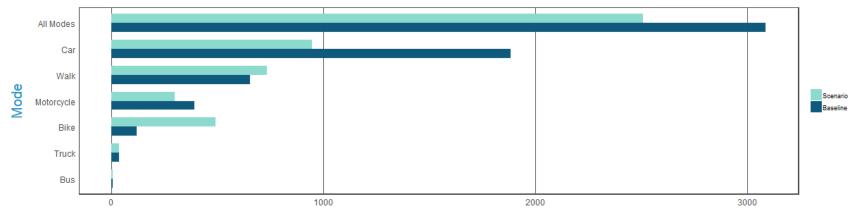
#### High Level

#### U.S. Surgeon General Recommendation, California

Table 3. Number of Fatal and Serious Injuries by Victim Mode, California, U.S. Surgeon General Recommendation, 2010

Mode	Baseline Total	Baseline Fatal	Baseline Serious	Scenario Total	Scenario Fatal	Scenario Serious	RR Fatal	RR Serious
Bike	905	119	786	4,062	490	3,573	4.1	4.5
Bus	32.7	5.3	27.5	32.7	5.3	27.5	1.0	1.0
Car	7,791	1,884	5,908	3,764	946	2,818	0.5	0.5
Motorcycle	2,117	393	1,724	1,595	299	1,297	0.8	0.8
Truck	171	34.9	136	171	34.9	136	1.0	1.0
Walk	2,408	653	1,755	2,617	733	1,884	1.1	1.1
All Modes	13,426	3,090	10,336	12,243	2,508	9,735	0.8	0.9

RR. Relative Risk



Fatal Injuries





#### High Level U.S. Surgeon General Recommendation, California

Table 4. Rate of Fatal and Serious Injuries per Billion Miles and Victim Mode, California, U.S. Surgeon General Recommendation, 2010

Mode	F	atal	Serious			
Mode	Baseline	Scenario	Baseline	Scenario		
Bike	0.9	0.1	6.0	0.7		
Bus	< 0.1	< 0.1	0.2	0.2		
Car	< 0.1	< 0.1	0.2	0.1		
Motorcycle	3.3	2.5	14.6	11.0		
Truck	< 0.1	< 0.1	< 0.1	< 0.1		
Walk	2.0	0.6	5.3	1.5		
All Modes	6.3	3.3	26.4	13.7		





#### Summary Level Low Carbon Driving, California

Table 1. Annual Changes in Active Travel Time, Deaths, Costs, and Carbon Emissions, California, Low Carbon Driving, 2010

Item	Baseline	Scenario
Active Travel Time (min/p/week)	40.6	40.6
Avoided Deaths		30.6
Health Cost Savings (\$ billion 2010)		< 0.1
Carbon Emissions (MMTY)	94.6	31.7

MMTY, million metric tons per year

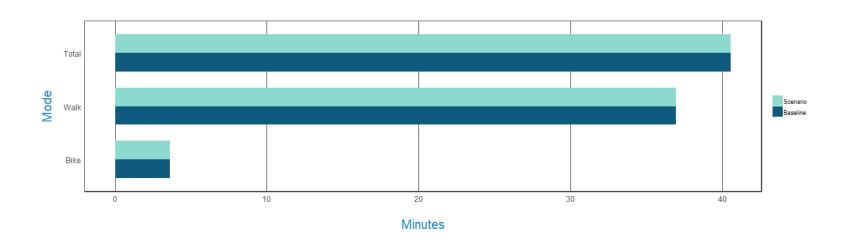




#### Summary Level Low Carbon Driving, California

Table 2. Per Capita Mean Weekly Active Travel Times (minutes), California, Low Carbon Driving, 2010

Mode	Baseline	Scenario
Walk	36.9	36.9
Bike	3.6	3.6
Total	40.6	40.6



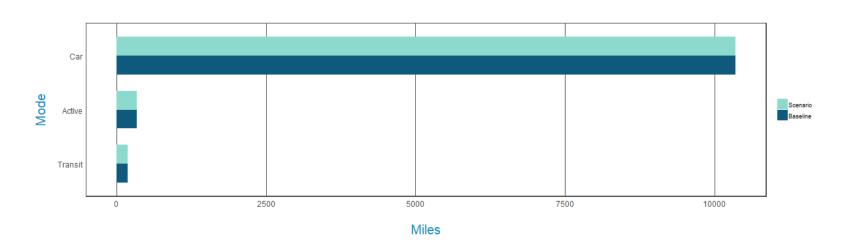




## Summary Level Low Carbon Driving, California

Table 3. Per Capita Mean Annual Travel Distance (Miles) by Mode, California, Low Carbon Driving, 2010

Mode	Baseline	Scenario
Active	334	334
Car	10,349	10,349
Transit	182	182
Total (incl. Truck & Motorcycle)	11,627	11,627





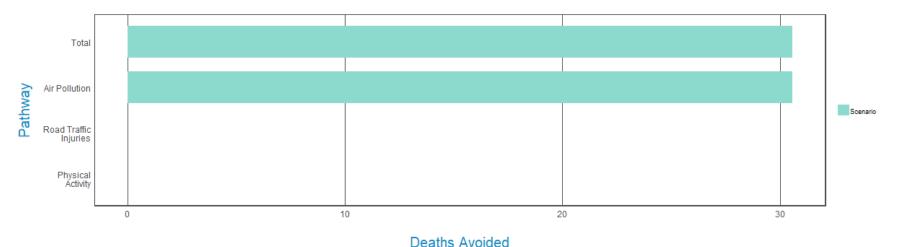


## Summary Level Low Carbon Driving, California

Table 4. Annual Change in the Burden of Disease by Health Pathway, California, Low Carbon Driving, 2010

Pathway	PAF %, Deaths	Deaths Avoided	PAF %, Dalys	Dalys Avoided
Physical Activity	0.0	0.0	0.0	0.0
Air Pollution	< 0.1	30.6	< 0.1	419
Road Traffic Injuries	0.0	0.0	0.0	0.0
Total	< 0.1	30.6	< 0.1	419

PAF, population attributable fraction; DALYS, disability adjusted life years Negative PAF and DALYs indicate an increase in the burden of disease and injury





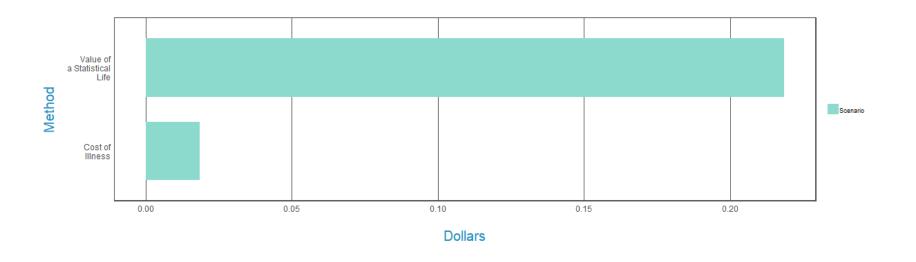




## Summary Level Low Carbon Driving, California

Table 5. Annual Cost Savings of Health Benefits (billions of 2010 dollars), California, Low Carbon Driving, 2010

Method	Dollars
Cost of Illness	<0.1
Value of a Statistical Life	0.2



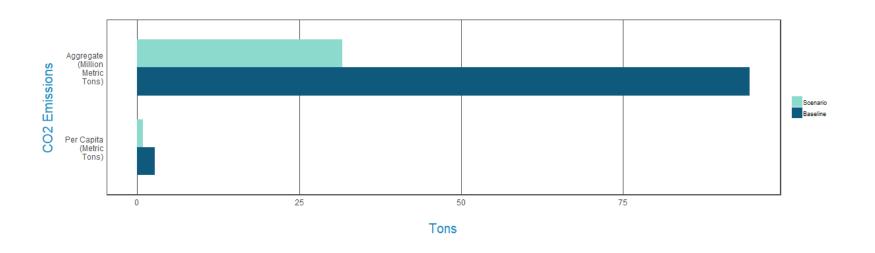




#### Summary Level Low Carbon Driving, California

Table 6. Annual Car Carbon Emissions, California, Low Carbon Driving, 2010

CO <sub>2</sub> Emissions	Baseline	Scenario
Aggregate (Million Metric Tons)	94.6	31.7
Per Capita (Metric Tons)	2.7	0.9



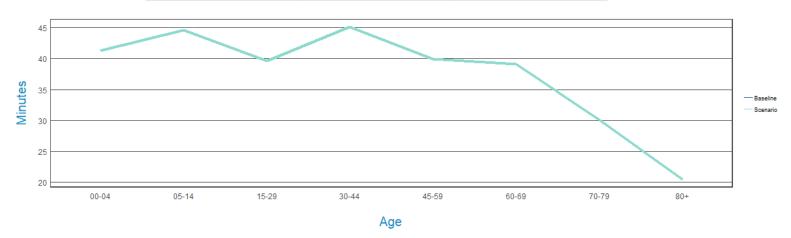




#### Medium Level Low Carbon Driving, California

Table 1. Per Capita Mean Weekly Active Travel Time (minutes) by Age, California, Low Carbon Driving, 2010

Age Gender	Baseline	Scenario
00-04	41.3	41.3
05-14	44.6	44.6
15-29	39.6	39.6
30-44	45.1	45.1
45-59	40.0	40.0
60-69	39.1	39.1
70-79	30.1	30.1
80+	20.4	20.4
Male	39.6	39.6
Female	41.5	41.5







#### Medium Level Low Carbon Driving, California

Table 2. Per Capita Mean Annual Travel Distance (Miles) by Mode, California, Low Carbon Driving, 2010

Mode	Baseline	Scenario
Bike	37.8	37.8
Bus	297	297
CarDriver	6,858	6,858
CarPassenger	3,491	3,491
Motorcycle	34.1	34.1
Rail	148	148
Truck	665	665
Walk	96.3	96.3

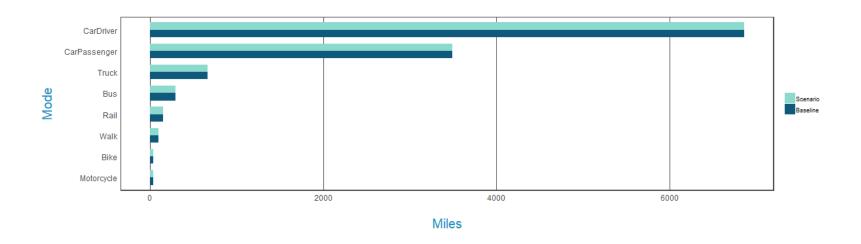






Table 3. Annual Number of Deaths Averted by Cause, California, Low Carbon Driving, 2010

Cause	PAF %	Deaths
Heart Disease and Stroke	< 0.1	22.1
Lung Cancer	< 0.1	4.4
Respiratory diseases	< 0.1	4.0
Breast Cancer	0.0	0.0
Colon Cancer	0.0	0.0
Dementia	0.0	0.0
Depression	0.0	0.0
Diabetes	0.0	0.0
Road Traffic Injuries	0.0	0.0
Total	< 0.1	30.6

PAF, population attributable fraction; DALYS, disability adjusted life years Negative PAF and DALYs indicate an increase in the burden of disease and injury

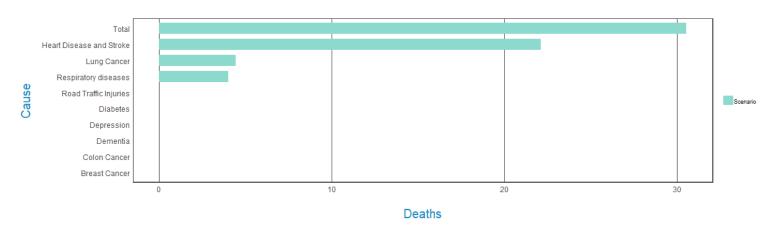






Table 4. Annual Cost Savings of Health Benefits (millions of 2010 dollars), California, Low Carbon Driving, 2010

Cause	COI	VSL
Heart Disease	14.3	122
Stroke	1.3	33.5
Lung Cancer	2.1	32.8
Asthma and COPD	0.8	29.8
Breast Cancer	0.0	0.0
Colon Cancer	0.0	0.0
Dementia	0.0	0.0
Depression	0.0	0.0
Diabetes	0.0	0.0
Road Traffic Injuries	0.0	0.0
Total	18.4	218

COI, cost of illness; VSL, value of a statistical life Negative numbers indicate an increase in the burden of disease and injury/costs

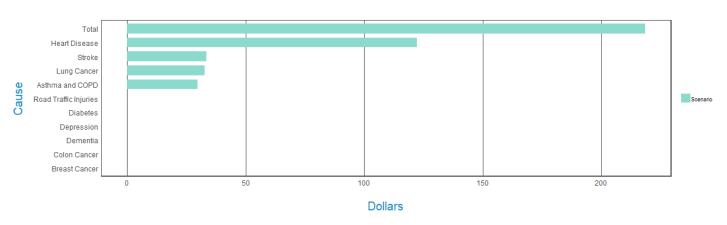






Table 1. Per Capita Mean Weekly Active Travel Time (minutes) by Age and Gender, California, Low Carbon Driving, 2010

Sex	Age Group	Population	Baseline Walk	Baseline Bike	Baseline Total	Scenario Walk	Scenario Bike	Scenario Total
Male	00-04	1,211,552	38.8	3.4	42.2	38.8	3.4	42.2
Male	05-14	2,439,675	41.7	4.2	45.9	41.7	4.2	45.9
Male	15-29	3,988,060	32.3	6.0	38.3	32.3	6.0	38.3
Male	30-44	3,658,369	33.1	5.8	38.9	33.1	5.8	38.9
Male	45-59	3,395,970	34.0	6.3	40.3	34.0	6.3	40.3
Male	60-69	1,348,746	36.2	4.4	40.7	36.2	4.4	40.7
Male	70-79	709,340	26.2	3.0	29.2	26.2	3.0	29.2
Male	80+	413,653	22.4	1.9	24.3	22.4	1.9	24.3
Female	00-04	1,158,662	37.9	2.4	40.3	37.9	2.4	40.3
Female	05-14	2,333,558	40.6	2.8	43.4	40.6	2.8	43.4
Female	15-29	3,750,401	39.2	1.9	41.0	39.2	1.9	41.0
Female	30-44	3,623,524	48.9	2.6	51.4	48.9	2.6	51.4
Female	45-59	3,492,692	37.4	2.2	39.6	37.4	2.2	39.6
Female	60-69	1,502,454	36.8	0.9	37.7	36.8	0.9	37.7
Female	70-79	877,407	30.0	0.8	30.8	30.0	0.8	30.8
Female	80+	681,201	17.8	0.2	18.1	17.8	0.2	18.1
Both	Total	34,585,264	36.9	3.6	40.6	36.9	3.6	40.6





Figure 1. Per Capita Mean Weekly Active Travel Time (minutes) by Age and Gender, California, Low Carbon Driving, 2010

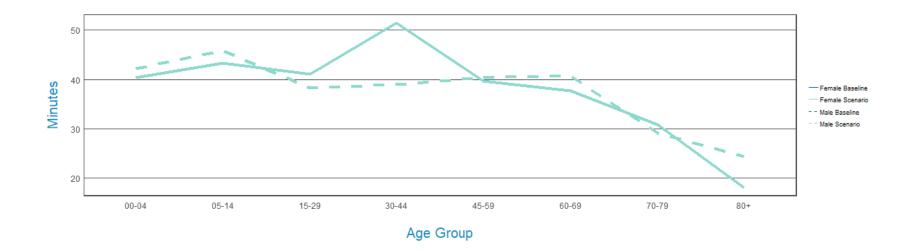






Table 2. Annual Change in the Burden of Disease by Health Pathway, California, Low Carbon Driving, 2010

Disease Injury Classification	Pathway	Change Deaths	Change YLL	Change YLD	Change DALY	PAF %, Deaths	PAF %, YLL	PAF %, YLD	PAF %, DALY
All Causes	PA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Breast Cancer	PA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Colon Cancer	PA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dementia	PA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Depression	PA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Diabetes	PA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hypertensive Heart Disease	PA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ischemic Heart Disease	PA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Stroke	PA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ischemic Heart Disease	PA+PM	13.7	179	0.0	179	< 0.1	< 0.1	0.0	< 0.1
Stroke	PA+PM	4.5	57.0	0.0	57.0	< 0.1	< 0.1	0.0	< 0.1
Hypertensive Heart Disease	PA+PM	2.8	39.7	0.0	39.7	< 0.1	< 0.1	0.0	< 0.1
All Causes	PM	75.7	1,173	0.0	1,173	< 0.1	< 0.1	0.0	< 0.1
Ischemic Heart Disease	PM	13.7	179	0.0	179	< 0.1	< 0.1	0.0	< 0.1
Stroke	PM	4.5	57.0	0.0	57.0	< 0.1	< 0.1	0.0	< 0.1
Lung Cancer	PM	4.4	74.4	0.0	74.4	< 0.1	< 0.1	0.0	< 0.1
Respiratory diseases	PM	4.0	49.0	0.0	49.0	< 0.1	< 0.1	0.0	< 0.1
Hypertensive Heart Disease	PM	2.8	39.7	0.0	39.7	< 0.1	< 0.1	0.0	< 0.1
Inflammatory Heart Disease	PM	1.0	20.1	0.0	20.1	< 0.1	< 0.1	0.0	< 0.1
Acute resp infections	PM	< 0.1	< 0.1	0.0	< 0.1	< 0.1	< 0.1	0.0	< 0.1
Road Traffic Injuries	RTI	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

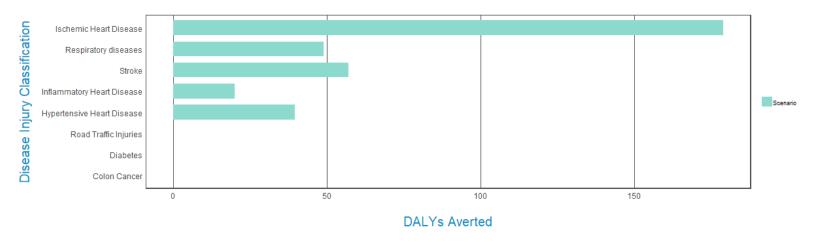
Pathway: PA, physical activity; PM, particulate matter

YLL, years of life lost; YLD, years living with disability; DALY, DALYS, disability adjusted life years; PAF, population attributable fraction Negative PAF and DALYs indicate an increase in the burden of disease and injury





Figure 2. Annual Change in the Burden of Disease by Health Pathway (PA + PM), California, Low Carbon Driving, 2010



Pathway: PA, physical activity; PM, particulate matter

YLL, years of life lost; YLD, years living with disability; DALY, DALYS, disability adjusted life years; PAF, population attributable fraction Negative PAF and DALYs indicate an increase in the burden of disease and injury





Table 3. Number of Fatal and Serious Injuries by Victim Mode, California, Low Carbon Driving, 2010

Mode	Baseline Total	Baseline Fatal	Baseline Serious	Scenario Total	Scenario Fatal	Scenario Serious	RR Fatal	RR Serious
Bike	905	119	786	905	119	786	1.0	1.0
Bus	32.7	5.3	27.5	32.7	5.3	27.5	1.0	1.0
Car	7,791	1,884	5,908	7,791	1,884	5,908	1.0	1.0
Motorcycle	2,117	393	1,724	2,117	393	1,724	1.0	1.0
Truck	171	34.9	136	171	34.9	136	1.0	1.0
Walk	2,408	653	1,755	2,408	653	1,755	1.0	1.0
All Modes	13,426	3,090	10,336	13,426	3,090	10,336	1.0	1.0

RR, Relative Risk

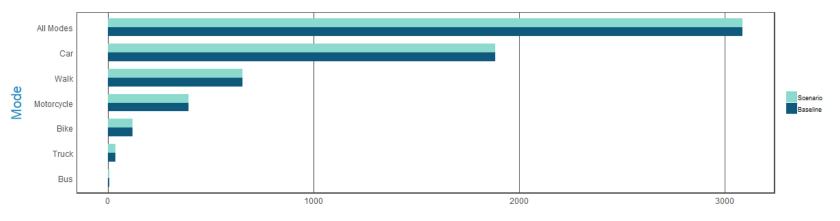








Table 4. Rate of Fatal and Serious Injuries per Billion Miles and Victim Mode, California, Low Carbon Driving, 2010

Mode	F	atal	Serious		
Mode	Baseline	Scenario	Baseline	Scenario	
Bike	0.9	0.9	6.0	6.0	
Bus	< 0.1	< 0.1	0.2	0.2	
Car	< 0.1	< 0.1	0.2	0.2	
Motorcycle	3.3	3.3	14.6	14.6	
Truck	< 0.1	< 0.1	< 0.1	< 0.1	
Walk	2.0	2.0	5.3	5.3	
All Modes	6.3	6.3	26.4	26.4	





Table 1. Annual Changes in Active Travel Time, Deaths, Costs, and Carbon Emissions, California, Replacing Short Car Trips with Active Travel, 2010

Item	Baseline	Scenario
Active Travel Time (min/p/week)	40.6	151
Avoided Deaths		4,308
Health Cost Savings (\$ billion 2010)		4.4
Carbon Emissions (MMTY)	94.6	86.0

MMTY, million metric tons per year





Table 2. Per Capita Mean Weekly Active Travel Times (minutes), California, Replacing Short Car Trips with Active Travel, 2010

Mode	Baseline	Scenario
Walk	36.9	63.2
Bike	3.6	87.8
Total	40.6	151

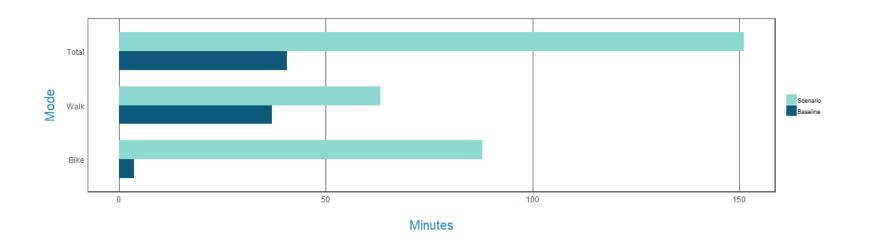






Table 3. Per Capita Mean Annual Travel Distance (Miles) by Mode, California, Replacing Short Car Trips with Active Travel, 2010

Mode	Baseline	Scenario
Active	334	1,210
Car	10,349	9,405
Transit	182	182
Total (incl. Truck & Motorcycle)	11,627	11,627

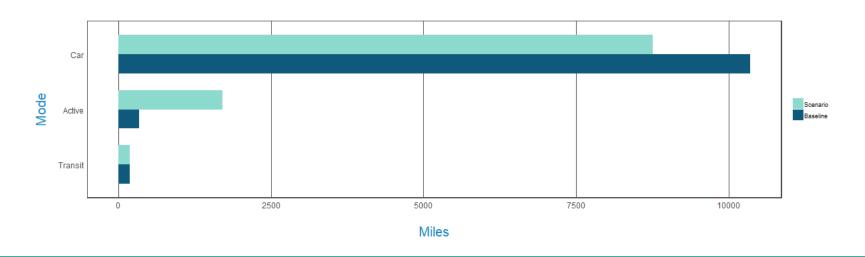






Table 4. Annual Change in the Burden of Disease by Health Pathway, California, Replacing Short Car Trips with Active Travel, 2010

Pathway	PAF %, Deaths	Deaths Avoided	PAF %, Dalys	Dalys Avoided
Physical Activity	5.5	4,807	6.0	107,283
Air Pollution	< 0.1	8.2	< 0.1	113
Road Traffic Injuries	-18.9	-506.4	-18.9	-31,678.1
Total	2.5	4,309	2.2	75,718

PAF, population attributable fraction; DALYS, disability adjusted life years Negative PAF and DALYs indicate an increase in the burden of disease and injury

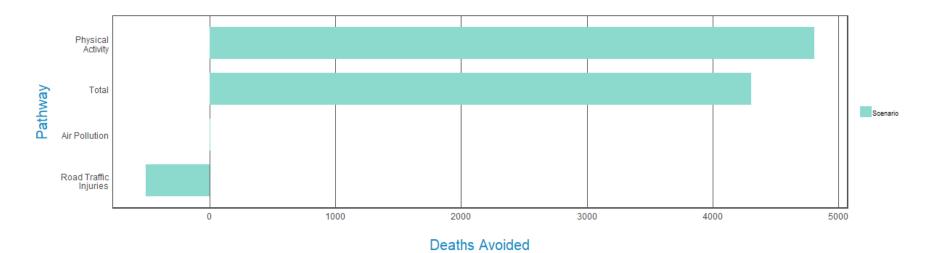






Table 5. Annual Cost Savings of Health Benefits (billions of 2010 dollars), California, Replacing Short Car Trips with Active Travel, 2010

Method	Dollars
Cost of Illness	4.4
Value of a Statistical Life	31.9

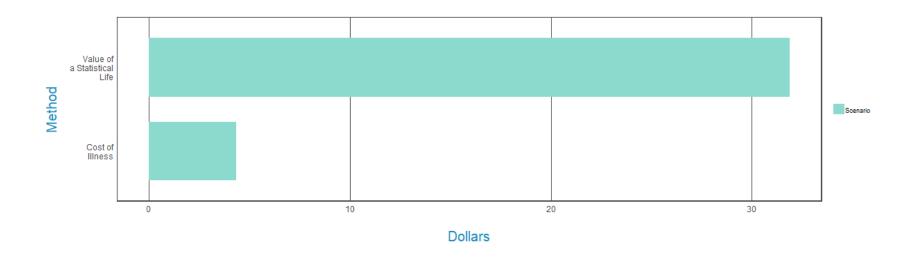






Table 6. Annual Car Carbon Emissions, California, Replacing Short Car Trips with Active Travel, 2010

CO <sub>2</sub> Emissions	Baseline	Scenario
Aggregate (Million Metric Tons)	94.6	86.0
Per Capita (Metric Tons)	2.7	2.5

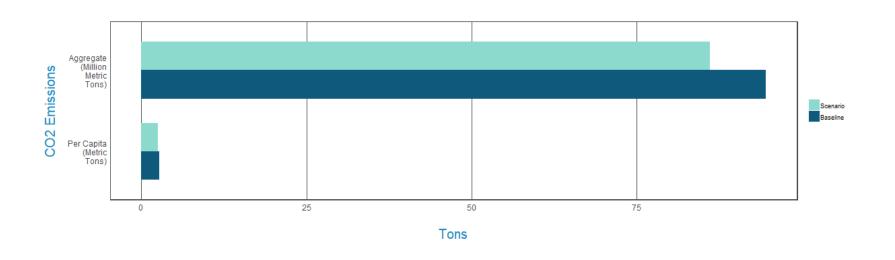






Table 1. Per Capita Mean Weekly Active Travel Time (minutes) by Age, California, Replacing Short Car Trips with Active Travel, 2010

Age Gender	Baseline	Scenario
00-04	41.3	136
05-14	44.6	155
15-29	39.6	158
30-44	45.1	171
45-59	40.0	164
60-69	39.1	125
70-79	30.1	92.2
80+	20.4	54.6
Male	39.6	186
Female	41.5	117

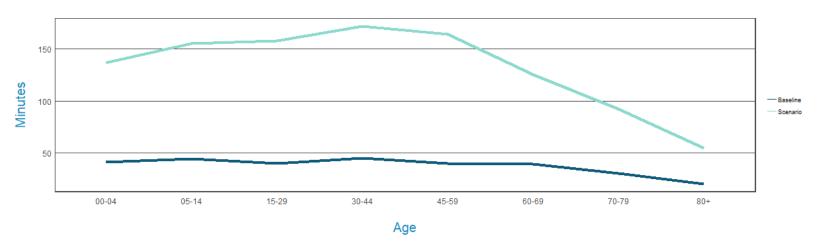






Table 2. Per Capita Mean Annual Travel Distance (Miles) by Mode, California, Replacing Short Car Trips with Active Travel, 2010

Mode	Baseline	Scenario	
Bike	37.8	914	
Bus	297	297	
CarDriver	6,858	6,241	
CarPassenger	3,491	3,164	
Motorcycle	34.1	34.1	
Rail	148	148	
Truck	665	665	
Walk	96.3	164	

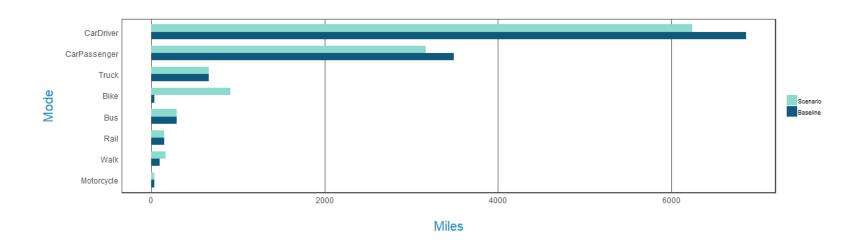






Table 3. Annual Number of Deaths Averted by Cause, California, Replacing Short Car Trips with Active Travel, 2010

Cause	PAF %	Deaths
Heart Disease and Stroke	6.0	3,569
Dementia	3.9	648
Diabetes	6.7	453
Colon Cancer	2.3	89.9
Breast Cancer	1.3	52.5
Lung Cancer	< 0.1	1.2
Respiratory diseases	< 0.1	1.1
Depression	0.0	0.0
Road Traffic Injuries	-16.3	-506.4
Total	3.7	4,308

PAF, population attributable fraction; DALYS, disability adjusted life years Negative PAF and DALYs indicate an increase in the burden of disease and injury

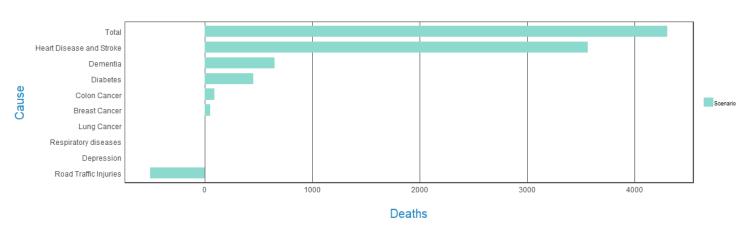






Table 4. Annual Cost Savings of Health Benefits (millions of 2010 dollars), California, Replacing Short Car Trips with Active Travel, 2010

Cause	COI	VSL
Heart Disease	3,546	21,183
Stroke	368	5,225
Dementia	737	4,794
Diabetes	1,673	3,355
Colon Cancer	69.1	665
Breast Cancer	36.3	388
Lung Cancer	0.6	8.8
Asthma and COPD	0.2	8.0
Depression	239	0.0
Road Traffic Injuries	-2,304.5	-3,747.6
Total	4,364	31,880

COI, cost of illness; VSL, value of a statistical life Negative numbers indicate an increase in the burden of disease and injury/costs

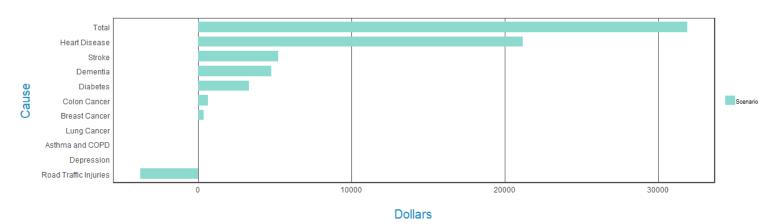






Table 1. Per Capita Mean Weekly Active Travel Time (minutes) by Age and Gender, California, Replacing Short Car Trips with Active Travel, 2010

Sex	Age Group	Population	Baseline Walk	Baseline Bike	Baseline Total	Scenario Walk	Scenario Bike	Scenario Total
Male	00-04	1,211,552	38.8	3.4	42.2	66.3	82.5	149
Male	05-14	2,439,675	41.7	4.2	45.9	71.3	102	173
Male	15-29	3,988,060	32.3	6.0	38.3	55.3	145	200
Male	30-44	3,658,369	33.1	5.8	38.9	56.6	140	197
Male	45-59	3,395,970	34.0	6.3	40.3	58.2	152	211
Male	60-69	1,348,746	36.2	4.4	40.7	62.0	107	169
Male	70-79	709,340	26.2	3.0	29.2	44.8	73.1	118
Male	80+	413,653	22.4	1.9	24.3	38.3	46.5	84.9
Female	00-04	1,158,662	37.9	2.4	40.3	64.9	58.4	123
Female	05-14	2,333,558	40.6	2.8	43.4	69.4	67.1	137
Female	15-29	3,750,401	39.2	1.9	41.0	67.0	45.3	112
Female	30-44	3,623,524	48.9	2.6	51.4	83.6	62.0	146
Female	45-59	3,492,692	37.4	2.2	39.6	64.0	54.4	118
Female	60-69	1,502,454	36.8	0.9	37.7	62.9	22.0	84.9
Female	70-79	877,407	30.0	0.8	30.8	51.3	20.2	71.5
Female	80+	681,201	17.8	0.2	18.1	30.5	5.8	36.3
Both	Total	34,585,264	36.9	3.6	40.6	63.2	87.8	151





Figure 1. Per Capita Mean Weekly Active Travel Time (minutes) by Age and Gender, California, Replacing Short Car Trips with Active Travel, 2010

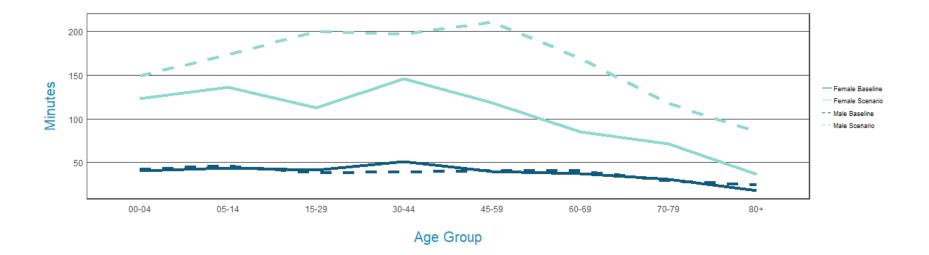






Table 2. Annual Change in the Burden of Disease by Health Pathway, California, Replacing Short Car Trips with Active Travel, 2010

Disease Injury Classification	Pathway	Change Deaths	Change YLL	Change YLD	Change DALY	PAF %, Deaths	PAF %, YLL	PAF %, YLD	PAF %, DALY
All Causes	PA	5,187	64,787	0.0	64,787	2.5	1.8	0.0	1.0
Ischemic Heart Disease	PA	2,388	41,699	3,857	45,557	6.5	8.6	8.4	8.6
Stroke	PA	705	12,388	4,164	16,552	5.8	7.7	8.0	7.7
Dementia	PA	648	4,615	3,135	7,750	3.9	3.9	3.8	3.9
Hypertensive Heart Disease	PA	470	9,357	238	9,595	6.2	8.7	7.1	8.6
Diabetes	PA	453	9,665	8,277	17,942	6.7	8.3	8.3	8.3
Colon Cancer	PA	89.9	1,585	104	1,688	2.3	2.3	2.3	2.3
Breast Cancer	PA	52.5	1,021	195	1,216	1.3	1.2	1.3	1.2
Depression	PA	0.0	0.0	6,983	6,983	0.0	0.0	2.1	2.1
Ischemic Heart Disease	PA+PM	2,391	41,743	3,857	45,601	6.5	8.6	8.4	8.6
Stroke	PA+PM	706	12,402	4,164	16,566	5.8	7.7	8.0	7.7
Hypertensive Heart Disease	PA+PM	471	9,366	238	9,604	6.2	8.7	7.1	8.6
All Causes	PM	20.3	315	0.0	315	< 0.1	< 0.1	0.0	< 0.1
Ischemic Heart Disease	PM	3.7	48.1	0.0	48.1	< 0.1	< 0.1	0.0	< 0.1
Stroke	PM	1.2	15.3	0.0	15.3	< 0.1	< 0.1	0.0	< 0.1
Lung Cancer	PM	1.2	20.0	0.0	20.0	< 0.1	< 0.1	0.0	< 0.1
Respiratory diseases	PM	1.1	13.2	0.0	13.2	< 0.1	< 0.1	0.0	< 0.1
Hypertensive Heart Disease	PM	0.8	10.7	0.0	10.7	< 0.1	< 0.1	0.0	< 0.1
Inflammatory Heart Disease	PM	0.3	5.4	0.0	5.4	< 0.1	< 0.1	0.0	< 0.1
Acute resp infections	PM	< 0.1	< 0.1	0.0	< 0.1	< 0.1	< 0.1	0.0	< 0.1
Road Traffic Injuries	RTI	-506.4	-22,879.3	-8,798.8	-31,678.1	-16.3	-16.3	-32.2	-18.9

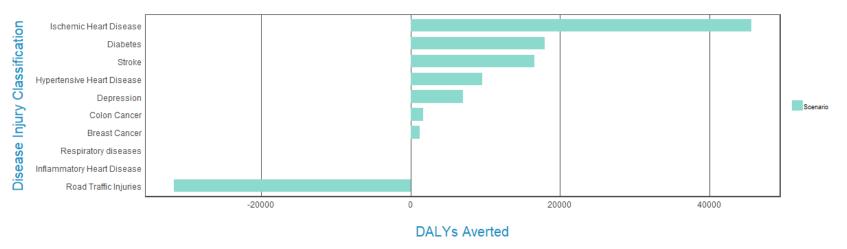
Pathway: PA, physical activity; PM, particulate matter

YLL, years of life lost; YLD, years living with disability; DALY, DALYS, disability adjusted life years; PAF, population attributable fraction Negative PAF and DALYs indicate an increase in the burden of disease and injury





Figure 2. Annual Change in the Burden of Disease by Health Pathway (PA + PM), California, Replacing Short Car Trips with Active Travel, 2010



Pathway: PA, physical activity; PM, particulate matter

YLL, years of life lost; YLD, years living with disability; DALY, DALYS, disability adjusted life years; PAF, population attributable fraction Negative PAF and DALYs indicate an increase in the burden of disease and injury





Table 3. Number of Fatal and Serious Injuries by Victim Mode, California, Replacing Short Car Trips with Active Travel, 2010

Mode	Baseline Total	Baseline Fatal	Baseline Serious	Scenario Total	Scenario Fatal	Scenario Serious	RR Fatal	RR Serious
Bike	905	119	786	4,675	587	4,088	4.9	5.2
Bus	32.7	5.3	27.5	32.7	5.3	27.5	1.0	1.0
Car	7,791	1,884	5,908	7,262	1,761	5,501	0.9	0.9
Motorcycle	2,117	393	1,724	2,063	383	1,679	1.0	1.0
Truck	171	34.9	136	171	34.9	136	1.0	1.0
Walk	2,408	653	1,755	3,058	821	2,237	1.3	1.3
All Modes	13,426	3,090	10,336	17,261	3,593	13,668	1.2	1.3

RR, Relative Risk

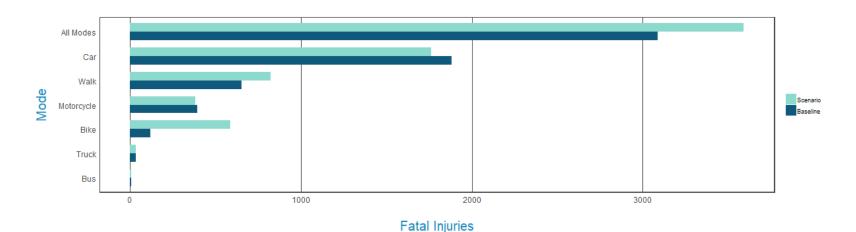






Table 4. Rate of Fatal and Serious Injuries per Billion Miles and Victim Mode, California, Replacing Short Car Trips with Active Travel, 2010

Mada	F	atal	Serious			
Mode	Baseline	Scenario	Baseline	Scenario		
Bike	0.9	0.2	6.0	1.3		
Bus	< 0.1	< 0.1	0.2	0.2		
Car	< 0.1	< 0.1	0.2	0.3		
Motorcycle	3.3	3.2	14.6	14.2		
Truck	< 0.1	< 0.1	< 0.1	< 0.1		
Walk	2.0	1.4	5.3	3.9		
All Modes	6.3	5.0	26.4	20.0		





#### **Additional tables:**

https://ww2.arb.ca.gov/ITHIM



